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AN ADDRESS IN MEDICINE.

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MR. PRESIDENT AND GENTLEMEN:—The honor which you conferred in appointing me to prepare the address on medicine for the present session carries with it great labor and serious responsibility. The ideal address on medicine should contain not only a *résumé* of the progress made and the new discoveries announced in the different branches of our science during the previous year, but it should also contain a critical examination of the statements made and the theories advanced in each department of medicine, so that the chaff can be winnowed from the wheat, and our knowledge strengthened by the addition of valuable truths and the rejection of worthless statements and visionary theories. This task, which would not be easy under any circumstances, has been increased to a formidable degree during the past four years by the overgrowth of modern specialism. Indeed specialism has developed in a comparatively short period from the necessary and legitimate consideration of diseases of the eye and ear, and one or two other organs, into a monstrous incubus which casts a shadow over every department of medicine.

It would be the height of folly to deny that all the advances in medicine are the result of clinical observation and experimentation combined with thorough investigation of the functions of the different organs of the body, and the manner in which those functions are modified in health and in disease by various therapeutic agents, but no real addition to our knowledge has been, or can be made by the purblind specialist who attributes all the ills of humanity to a derangement of the organ which he has made his study. He is the bane of modern medicine. The antidote is to let him alone severely. Not understanding or not appreciating the fact that the bond of sympathy, between every organ of the body is so close that when one is affected all of the rest suffer, he contributes little to the general fund of information, but a multitude of words which are intended to magnify himself and mystify his hearers. Emboldened by the tolerance with which he has been received, he has become so arrogant as to assume that the medical wisdom of all the ages is centered in his person, and that he is the master and not merely the supernumerary of the profession. I trust that this absurd delusion will soon be dispelled and that the practitioners of this State and country will arouse to the necessity of checking the further growth of this excrescence on the body politic.

The thoughtful, reading, busy country practitioner is fully competent to treat and cure any curable affection, and if a cure be impossible, the patient's sufferings can be alleviated, and his life prolonged just as well and as scientifically at home as in New York, Philadelphia, or Boston. The successes of the specialists are heralded to the world; their mistakes and their failures are passed over in silence. No two trees in a forest are of exactly the same size, and there are, and always will be physicians, who are preëminent among the prominent of the profession, but the assertion that there are any diseases which the general practitioner should not attempt to treat is contemptible and untrue. In fact the arrogance of modern specialism is frequently surpassed by its ignorance. It is only a short time ago since one of the most pretentious of New York specialists argued violently that the respiration in croup is slower than normal. Country practitioners who have seen children panting for air, while their respirations rose to 50, 60, 80, and 90 per minute can see from this that overbearing egotism does not always imply intellectual superiority. Many other instances might be referred to, such as exsecting a rib for an imaginary empyema, opening the gall-bladder in search of gall-stones that existed only in the mind of the operator, the barbarous and useless castration of women, and similar outrages. Suffice it to say that the columns of the current medical journals contain ample evidence of the ability of the general practitioner to meet all emergencies, and show that the claim of superior intelligence on the part of the specialist is utterly unfounded. The glory of American medicine does not rest upon the inherited qualities of any one man or set of men, but upon the learning and skill of the medical profession of the entire country.

The most practical observations on medical physiology which have appeared during the year are those of Alexander Harkin, of Belfast, in which he directed attention to the many disorders of the genital organs which are produced by congestion of the medulla oblongata. If Dr. Harkin's admirable observations on this subject were carefully studied by modern gynæcologists the present craze for castrating women would speedily subside. Dr. Harkin has also called attention to the depression of the sympathetic nerv-

ous system in cholera, and the necessity of adopting measures to counteract that depression.

Dr. Isaac Ott, of Easton, Pa., began a series of investigations some time ago to ascertain what relation the nervous system bore to the production of heat and the maintenance of the temperature of the body. These researches are not finished yet, but enough has been ascertained to indicate the existence of heat centres in the cerebrum, and that they are situated in the anterior portion of the optic thalami or in the cortex surrounding the corpora striata.

A curious case reported by M. Tarchanoff is that of a medical student who possesses the power of retarding and accelerating the beats of his heart at will.

Ewald and Boas, of Berlin, have made a series of investigations of the process of digestion; as the result of which they state that stomachic digestion consists of three stages; during the first stage, which lasts half an hour, the gastric juice contains lactic acid; in the second stage, occupying from half an hour to an hour, both lactic and hydrochloric acids are present; during the third stage, consuming an hour or an hour and a half, hydrochloric acid is the only acid present.

The field of bacterial investigation is still being diligently worked, but no very practical results have yet been arrived at. Virchow acknowledges the importance of this subject, but justly deprecates the folly of assigning a bacterial origin to all maladies, and believes that the day of the cells will soon come again. The subject of ptomaines has also received considerable attention. The poison of decaying cheese has been isolated by Dr. Vaughan and termed tyrotoxicon.

The theory that the poison of cholera acts primarily on the mucous membrane of the intestinal canal and secondarily upon the sympathetic nervous system has gained many adherents during the past year. The treatment based upon this theory consists in the addition of dilute sulphuric acid to all drinking water as a prophylactic measure, and in the administration in the early stages of the disease of large doses of calomel or ipecachuana in order to produce a free outflow of bile into the intestinal tract, the biliary secretion being destructive to all forms of low organisms. In the second stage the depression of the sympathetic nervous system can be most effectually counteracted by the administration of atropia, strychnia, and capsicum. Dr. Harkin has obtained brilliant results from the application of blisters over the course of the upper portion of the pneumogastric nerve in severe cases of cholera morbus, and earnestly urges a trial of the same measure in true cholera. Dr. W. B. Ryan, of Indiana, has directed the attention of the profession to belladonna or its alkaloid, atropia, in the treatment of cholera infantum. As this disease does not differ materially either in etiology or symptomatology from the cholera morbus, and sporadic cholera of adults, there can be no doubt of the value of belladonna in its management. Dr. Ryan is certainly entitled to our warmest gratitude for presenting the profession with an effective remedy for this dreaded disease of infantile life. The prevention of cholera infantum is of even more importance than its successful treatment. The best prophylactic measure is frequent bathing of the entire surface with cold water. Attention to the diet is also of prime importance, but unless the effects of the excessive summer heat be counteracted by the free use of cold water great mortality will ensue. After an attack of cholera infantum has been fully developed cold bathing will still be found beneficial, and in many cases indispensable.

Dr. J. J. Mulheron, of Detroit, has truly said that "Baths hold an important place in the treatment of the fever of cholera infantum. The soothing influence of a cold bath on a child whose temperature has reached 103° F., and the increased activity of the drugs administered after the bath, need but to be witnessed to make converts to this much neglected remedy in the treatment of cholera infantum. The child should be immersed up to the neck in water at a temperature of 95 F., to which cold water should be added until the bath reaches 70 F. or even lower, the condition of the patient, his temperature, etc., being the guide to the reduction. No hard-and-fast rules can be laid down to govern the temperature of the bath or its frequency; the condition of the infant must be the guide which the good sense of the physician must be trusted to interpret and follow."

Several articles have been published during the past year in reference to the hypodermic use of antipyrin in the treatment of sunstroke or thermic fever. The results do not appear to justify its further employment. Sunstroke can be averted by drinking freely of cold water and avoiding excessive exertion during the heated term. If an attack supervenes the best remedies are free ventilation and the copious external application of cold water. If the pulse be full and bounding, venesection may be resorted to with advantage or aconite may be administered hypodermically.

Dr. H. C. Wood has observed a number of cases of lead poisoning, in which the true nature of the malady was not suspected for a long time, and urges that a careful examination of the urine should be made for lead in all obscure cases of long standing. In connection with this subject it may be stated that Dr. W. S. Janney believes that, in our climate, few, if any cases of cholera morbus occurring in persons not previously debilitated will terminate fatally, and that many of the deaths which are attributed to that disease, are in reality due to the secret administration of a vegetable or a mineral poison.

Dr. Pavy has directed attention to the fact that the presence of albumen in the urine unaccompanied with other symptoms does not necessarily imply a diseased condition of the kidneys. There are many persons whose urine becomes albuminous whenever the blood-pressure is increased as by exercise, mental strain, or a heavy meal, but the albumen disappears in a few hours and the general health remains entirely unaffected. Small quantities of sugar may also appear in the urine occasionally without possessing any special significance.

Several writers in this country and in England have claimed that the relationship between quinsy and rheumatism is so close that practically speaking the former may be defined to be a localized rheumatic

inflammation of the tonsils. In proof of this they point to the fact that the majority of cases of quinsy occur during cold, damp weather, and are benefited by the salicylates and alkalies. This argument is ingenious but not convincing. The salicylates and alkalies are beneficial in quinsy because of their sedative and derivative antiphlogistic action, and not because of their antagonism to an imaginary rheumatic etiological factor. Far better results can be obtained moreover by the administration of aconite and guaiac in doses sufficient to produce free diaphoresis and a decided reduction in the force and frequency of the cardiac movements.

Pulmonary syphilis has received considerable attention, but not as much as its frequency and its importance deserve. The principal diagnostic points by which it can be differentiated from pulmonary tuberculosis are the history of a specific infection, the dry, irritating character of the cough, the absence or insignificant character of the râles, the absence or infrequent occurrence of hæmoptysis, the normal appearance of the chest notwithstanding the large area of induration, the substernal tenderness, the thickening of the tibia and clavicles, the absence of bacilli from the sputa, and finally, the absence of severe febrile symptoms; the temperature usually remaining about normal and rarely rising above 101 or 102 until late in the course of the disease. Improvement rapidly follows the internal administration of mercury and potassium iodide. In cerebral syphilis the most effective results can be obtained from mercury used hypodermatically or by inunctions, as by either of these methods the system can be more quickly impressed with the remedy.

Dr. Wilkinson has directed attention to the value of hypodermic injections of carbolic acid in carbuncle. Drs. Schuppert, Stewart, and Woodbury, in a series of valuable articles, have insisted upon the necessity of recognizing the difference between tetanus and tetany. The prognosis in the latter disease is almost always favorable while in the former recovery is rare. Tetanus is almost invariably a complication of a pre-existing wound or injury, while the so-called idiopathic tetanus is not true tetanus, but tetany. In tetanus the muscles of the jaws and trunk are primarily involved, in tetany they are not affected at all or only secondarily, the spasmodic contractions being usually limited to the muscles of the extremities. In tetanus the pain is agonizing, while in tetany it is comparatively slight.

The treatment of acute and chronic alcoholism by large doses of nux vomica or its alkaloid, strychnia, has been employed by many American and European practitioners with uniformly gratifying results.

The difficulty of making a diagnosis of gastric ulcer has been painfully illustrated in several cases, occurring recently in Philadelphia, in which the existence of this lesion was not suspected until actual perforation of the stomach took place followed by violent peritonitis and death. No blame can be attached to the attending physicians, for there were no symptoms indicative of the disease until medical aid was useless. It would be well, however, to bear these cases in mind when consulted for vague gastric symptoms, and to test the effect of the dietetic and therapeutic treatment appropriate for ulceration of the stomach, if other measures do not give prompt relief.

The neurotic treatment of coryza has been enthusiastically advocated by Dr. Lees, of London. This treatment consists of the administration of belladonna and bromide of potassium and the local application of cocaine, and is admirably adapted to those cases which are produced by exposure to cold and dampness. The epidemic cases, however, which are assumed to be due to minute bacteria can be more effectually treated by the use of large doses of quinine, from three to ten grains three times daily. Dr. Davidson, of Georgia, has directed attention to the value of the hypodermic administration of nux vomica in the treatment of opium poisoning, and Dr. O'Daniels, of the same State, has obtained the most gratifying results from phytolacca decandra in the treatment of orchitis.

While no brilliant discovery like that of cocaine has been made in the field of therapeutic research since our last meeting, several valuable additions have been made to our armamentarium and our confidence in many older agents has been increased. Alveloz, a South American remedy for cancer, has been tested in a few cases with apparently good results. The pain has been mitigated, the discharge lessened, the fetor removed, and the ulcerative process checked. Dr. Smith Townsend has reported a case of lupus of the face of forty years' standing which had resisted all previous treatment but was cured by a few applications of alveloz.

Kairin and antipyrin have been found to be prompt antipyretics. Unfortunately the reduction of temperature which they produce is of brief duration and is frequently accompanied by the most alarming symptoms of depression. In one case fatal collapse ensued; the judicious practitioner will avoid their use for the present and rely upon aconite, quinine, salicylate of soda, oily inunctions, and cold affusions. The safest and most efficient antipyretic is cold water applied either in the form of cold baths, sponge baths, or the wet-pack. It must be remembered, however, that the fever does not constitute the whole disease, and that heroic antipyretic measures are not indicated when the temperature does not exceed 103° F.

A process, termed pneumatic differentiation, has been introduced as a panacea for all pulmonary affections, and a number of elaborate articles have been published in commendation of it in various medical journals. A company has been formed to manufacture pneumatic cabinets, and the announcement is made that the cabinets will be rented to reputable physicians for the modest sum of $250 a year. The cabinet is practically an air-tight box in which the patient sits while a slightly greater quantity of air is forced into his lungs than he usually inspires. Some benefit naturally follows this increased admission of oxygen into the circulation, but greater benefit can be obtained by simply directing the patient to habitually breathe fully, slowly, and deeply while pursuing his ordinary avocation.

The peroxide of hydrogen, which is simply water impregnated with an excess of oxygen, has been found

to be a valuable antiseptic when used as an injection in leucorrhœa, gonorrhœa, cystitis and otorrhœa, and as a local application in diphtheria, foul ulcers, and fistulous tracts.

Antiseptic inhalations have long been used with benefit in whooping cough and bronchorrhœa as well as in phthisis. Among those which are now regarded as especially valuable are inhalations of creosote, turpentine, iodine, eucalyptus, benzoic acid, and carbolic acid.

Rhus aromatica, which was recommended years ago by Dr. N. S. Davis as a valuable remedy for incontinence of urine, is now coming into general use for that annoying complaint.

M. Caulet has directed attention to the value of the cold foot bath in insomnia and the various disorders dependent upon cerebral congestion.

Thallin, which was introduced as the ideal antipyretic, has been found to be more unreliable and dangerous than either antipyrin or kairin.

Syzygium jambolanum (jambol) has been recommended as a specific for diabetes. Clacius employed it in several cases, all of which exhibited marked improvement in a very short time, but further trial will be necessary to determine its value.

Jamaica dog-wood (piscidia erythrina) has been found to be a valuable sedative and hypnotic, and has the advantage of not being followed by constipation and nervous depression.

Hypnone and urethan also possess valuable hypnotic qualities, but their poisonous action upon the lower animals demands caution in their employment upon man.

Cascara sagrada has been ascertained to be an efficient tonic and laxative. It promotes the appetite, assists digestion, and overcomes constipation without producing any unpleasant effects whatever, and deserves to be admitted to the U. S. Pharmacopœia.

Dr. F. T. Paine has directed attention to the value of salix nigra in ovarian neuralgia, dysmenorrhœa, and all irritative conditions of the genito-urinary organs.

Dr. Tovar, of Cuba, has stated that parthenine, the active constituent of partheninum hysterophorus, possess marked value as an antipyretic and antiperiodic. The plant is used by the natives of Cuba as a substitute for quinine, to which it appears to be only slightly inferior. Its qualities deserve further investigation.

According to Korab and others, helenina, the active principle of inula helenium (elecampane) is a powerful antiseptic. A few drops of the solution of helenina immediately killed the organisms in ordinary infusions and proved fatal to the bacilli of tuberculosis.

It is recommended in cholera, cholera-infantum, malarial fever, and all the zymotic diseases, and may be substituted with advantage for carbolic acid in all preparations for external use.

Hyoscine has been thoroughly investigated by Dr. H. C. Wood and others, and found to be a potent sedative and hypnotic, and invaluable in the treatment of many disorders of the nervous system. As its action is prompt, and the susceptibility of individuals varies, the initial dose should not exceed gr. $\frac{1}{96}$.

Hamamelis virginiana has been somewhat neglected by American therapeutists, but European physicians who have employed it believe it to be without a superior as an astringent and hæmostatic. It has been used with remarkable benefit in menorrhagia, hæmoptysis, hæmophilia, intestinal hæmorrhage, painful hæmorrhoids, purpura and varicose veins.

Nitro-glycerine has retained its position as the remedy *par excellence* for angina pectoris and chronic interstitial nephritis. It is also effective in the treatment of shock, opium poisoning, cardiac asthma, cereberal hæmorrhage and in failure of the heart's action during the administration of chloroform.

Strophanthus hispidus, a new remedy which has been introduced by Prof. T. R. Fraser, promises to take the first rank as a cardiac tonic and stimulant.

According to M. Germain Sée, Sparteine, the active principle of spartium scoparium, the ordinary broom-plant, is also a powerful cardiac tonic similar to digitalis and convallaria, but more prompt in its action and more durable in its effects. Broom has long been known to be a valuable tonic diuretic. Liebrich, to whom we are indebted for the discovery of chloral, has called attention to the value of lanolin as a basis for ointments. Lanolin is an animal fat derived from wool and other keratin bearing tissues. It is not a panacea. It will not answer to employ it in all cases of skin disease, but it is readily absorbed, and possesses many advantages over the materials ordinarily employed as the basis for ointments. Lewinin, a resinous extract obtained from the root of piper methysticum, has been ascertained to be a local anæsthetic of considerable value but not equal to cocaine. Hydrastis and its alkaloid, hydrastine, have been employed in dyspepsia, melancholia, neurasthenia, and various forms of skin diseases with beneficial results. Rothe has ascertained that urtica dioica, the stinging nettle, possesses valuable hæmostatic properties. Boldo has been tested by several distinguished French clinicians and found to be a valuable hypnotic and soporific. Pyridine, one of the constituents of tobacco smoke, has been introduced for the treatment of asthma, but does not seem to possess any advantages over the remedies usually employed.

Terebene, a derivative of oil of turpentine, has been investigated by Murrell and found to be especially valuable in the treatment of winter cough, bronchorrhœa, and other forms of sub-acute and chronic bronchitis. It appears to have a sedative as well as a stimulating effect upon the mucous membrane of the respiratory tract, allaying irritation and assisting expectoration.

Attention has been directed to the value of osmic acid administered hypodermically in obstinate cases of sciatica. Sedum acre has been employed in diphtheria with apparent benefit. Ichthyol has been found effective as a local application in chronic eczema and psoriasis, pruritus, and acute and chronic rheumatism. Its value is due to the large percentage of sulphur which it contains.

Euphorbia pilulifera has been recommended for asthma. Salicylic acid has been found useful in the treatment of diarrhœa. Large doses of sulphur have

been asserted to be curative in dysentery. Caffeine has been thoroughly studied, and is believed to be but little, if at all inferior to digitalis as a diuretic and cardiac stimulant. Its effects are less durable, but its action is more prompt and devoid of the dangers of digitalis. Renewed attention has been given to the subject of lavage in various gastric disorders and to the efficacy of oxalate of cerium in large doses as a gastric sedative. Arsenic has been found to be of especial value in the treatment of pernicious anæmia and other wasting diseases.

The subject of dietetics has attracted considerable attention during the past year and will receive far more in the future. Improper or unsuitable food is the most potent factor in the production and maintenance of many morbid conditions, and while temporary benefit can be obtained by the administration of medicines, no lasting cure can be effected until the exciting cause is removed. It does not require the gift of prophecy to foretell that in the near future dietetics and hygiene will be the watchwords of preventive medicine, and dietetics and therapeutics those of practical medicine.

It is impossible for me to close this address without deploring the loss which the American medical profession has sustained in the death of Dr. Austin Flint, Sr. Preëminent as a writer, teacher, and practitioner of medicine; acknowledged without a dissenting voice to be the greatest of American physicians, he bore his honors modestly, and never arrogantly asserted his superiority or used his great authority to the disadvantage of the humblest of his professional brethren. Kind of heart, studious of disposition, refined in conversation, gentle and magnanimous in character, faithful to the American Medical Association to the end, he passed away surrounded by love, honor, and scores of friends; but his work lives after him, and his spirit is with us still. For as Longfellow has beautifully said:

"Were a star quenched on high,
For ages would its light
Stream downward from the sky
Upon our mortal sight.

"So when a great man dies;
For years beyond our ken
The light he leaves behind him lies
Upon the paths of men."

ORIGINAL ARTICLES.

ELECTROLYSIS IN GYNECOLOGY; WITH A REPORT OF THREE CASES OF FIBROID TUMOR SUCCESSFULLY TREATED BY THE METHOD (WITH DISCUSSION).[1]

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Electrolysis is the power of resolving compound bodies into their constituent elements by passing through them a current of electricity. The constituent elements or *ions* of a body or *electrolyte* so divided, have a general tendency to arrange themselves around either pole of the battery—the *anions* going to the positive and the *cations* to the negative. Electrolysis only occurs in that part of the body which is in a fluid state. We know that if a galvanic current be passed through water, the element oxygen is attracted by the positive, and the hydrogen by the negative pole. The theory of electrolysis is: In every compound one of the elements (the one attracted by the positive pole) is electro-negative, the other the electro-positive. If a molecule next the positive electrode be decomposed, the electro-negative constituent of the molecule is attracted by that pole, thereby setting free the electro-positive constituent, which immediately grasps and combines with the electro-negative element of the next molecule, and so on, until every molecule has been similarly acted upon in the line of the current.

This is the theory. While this is true, we find that besides this simple "change of position," as Clausius calls it, we have a direct transference of fluid particles in the direction of the galvanic current. This phenomenon of direct transference was called by Du-Bois Reymond the cataphoric action of the constant current. This action can be demonstrated in a simple way by placing the electrodes of a galvanic battery in two compartments of a fluid, separated by a porous septum, when it will be seen that the fluid particles pass in the direction of the galvanic current, from the + to the — pole, and the fluid in one half of the dish will increase at the expense of the other half. It is by this action that dissolved substances are introduced through the skin by means of electricity.

Thus briefly and imperfectly I have stated the principle of electrolysis as it is observed in a fluid. When it is remembered that from one-half to two-thirds in bulk of all the soft tissues of the body is water, we can readily see how perfectly electrolysis can be accomplished in the various tissues. While the galvanic current passed through a soft living tissue has not an uninterrupted fluid medium, it has practically a fluid medium divided into innumerable little compartments, each one separated from the other by a thin wall of solid. During the passage of the current each of these particles of solids acts as a positive electrode on the fluid between it and the next solid particle in front, and as a negative electrode upon the fluid between it and the solid particle behind it. Each molecule of fluid in a conducting solid, therefore, in the line of a galvanic current becomes electrolysized. It is found, also, in passing a galvanic current through a portion of the soft tissues of the body, that there is considerable tendency to a cataphoric action. That occurs by a direct transference of the fluid particles through the little permeable walls of solid in the direction of the negative pole of the battery. Thus we find the effect of electrolysis on a portion of soft fresh tissue to be: 1. A separation of the combined elements (more or less) into their constituent elements, and a rearrangement of

[1] Read in the Section of Obstetrics and Diseases of Women at the Thirty-Seventh Annual Meeting of the American Medical Association, May 5, 1886.

the same. 2. A general movement of elements in solution toward the negative pole of the battery.

Now, by a little ingenuity can we not readily explain how absorption is promoted by the process of electrolysis when applied to living normal tissue? A moderate galvanic current is passed through a part, and the most susceptible molecules in the course of the current become broken into their original elements: 1. These elements immediately make a similar or different combination with neighboring elements of opposite electrical tendencies, making thereby new compounds which act as foreign particles; as foreign bodies they are promptly removed by the nearest absorbent. 2. Other elements, as they become free from their original molecules, make combinations with elements which are already leaving the tissues through one of their innumerable minute vascular or absorbent canals. 3. Many, in the form of gas, pour into the atmosphere beneath and surrounding the electrodes. 4. Others attack the electrodes and are disposed of in form of deposit on their surfaces. 5. The current by its cataphoric action, that is, by its direct transference of fluid particles in the direction of the negative pole, produces an engorgement of the tissues at the negative side of the part acted upon. The absorbents in that portion of the tissue will promptly make an effort to establish an equilibrium, and by a direct action of endosmosis they are filled and the excess is carried away in their current. This is what takes place in normal tissue, when the galvanic current is passed through it.

A similar change is produced in pathological tissues alone, or in pathological tissues incorporated with normal tissues. The ultimate effect, however, on the two tissues of repeated electrolysis is different, because of the constant effort upon the part of non-pathological or normal tissue to repair itself, and the inability, with a few exceptions, of pathological tissue to do so.

The successful use of electrolysis in medicine and surgery, then, must be based upon the fact that pathological material is not replaced after absorption is accomplished, as is normal tissue, unless its *cause* is *still acting* or is *again brought* into action. The practical application of these principles of electrolysis opens a large field for electro-therapeutics.

Therapeutical Applications.—With a rational knowledge of the simple principles given above, the air of mystery surrounding the beneficial results obtained from electrolysis immediately disappears. It is not necessary, however, to base our faith on theoretical grounds alone, because we have a substantial line of historical clinical evidence that perfectly accords with it. While it is not my purpose in this paper to give a complete *résumé* of electrolysis in surgery and medicine, I cannot refrain from mentioning a few of its most prominent advocates as additional proof of its efficacy. I am indebted to Dr. Robert Newman, of New York, for much valuable literature on this subject.

Historical.—Aneurisms were reported cured by Petraquin[1] as early as 1845. Since 1875 by Bowditch,[2] Chauselle, Dujardin-Beaumetz, Laurent Robin,[3] Sands, Sevir, Pepper, Keyes, Heath, Francesco Brancaccio[4] and others.

Varicoceles have been reported cured by Dr. Robert Newman, of New York.

"Polypi, nævi, sebaceous tumors, and similar new formations, are promptly cured by electrolysis," says Bartholow. Nævi and port-wine marks are also reported cured by Beard;[5] also by Hardaway, of St. Louis.

Subcutaneous erectile tumors have been treated with success by W. T. Hutchinson, of Providence.[6]

Ganglions have been cured by galvano-puncture by Dr. David Prince, of Jacksonville, Ill.

Epilation by electrolysis has been successfully accomplished by G. H. Fox,[7] C. Heitzman and A. D. Rockwell,[8] of New York.

Hydrocele has been reported cured by Althaus, Frank,[9] Rodolfi,[10] Erhardt[11] and Bartholow.[12]

Extra-uterine pregnancy has a record for electrolysis. E. G. Lander,[13] T. Gaillard Thomas,[14] Paul F. Mundé and A. D. Rockwell have succeeded in destroying the fœtus by the use of galvanism.

In bronchoceles of the cystic variety cures are reported by Amussat,[15] Ultzman,[16] Smith[17] and Althaus.[18] Of the solid variety cures have been reported by Wahltück,[19] A. D. Rockwell,[20] and J. T. Everett.[21] Morrell Mackenzie also reported nine cases cured out of thirteen bronchoceles with electrolysis.

Ovarian cysts have been reported cured by Van Ehrenstein, Clemens,[22] Schmelder,[23] Vanderveer[24] and Mundé.[25]

The radical cure of hernia by electrolysis has been accomplished by Dr. J. Craft, of Cleveland, O., and reported by Dr. Robert Newman, of New York.[26] After the hernia is reduced he causes a sealing up of the inguinal canal by inserting a positive needle electrode, properly insulated except at the point, between the internal and external ring, and allowing a sufficient current to pass to excite adhesive inflammation.

Hæmorrhoids also have been cured by Dr. Craft by coagulating the contents by insertion of the positive needle electrode, or by absorption by inserting a negative needle electrode properly insulated except at point.

Epitheliomata have been cured by Robert New-

[1] Bulletin Gén. de Thérap., vol. xxxi.

[2] Boston Med. and Surg. Journal, No. 2, 1876.
[3] Robin. De l'Electro-poncteur dans la Cure des Anévrysmer Intra-thoracique, 1880.
[4] Rèvista Internaz. di Med. e Chir. 1884.
[5] Beard in Archives of Elect. and Neurology, vol ii, No. 1.
[6] Archives Electrol. and Neurol., vol. ii, No. 1.
[7] New York Med. Record, March 22, 1879.
[8] Ibid, October 13, 1883.
[9] Archiv. Electrol. and Neurol., vol. i, No. 21.
[10] Practitioner, September, 1873.
[11] Allgem. medic. Central-Zeitung, 99, 1874.
[12] Medical Electricity, 1881.
[13] Medical News, April 8, 1882.
[14] American Journal of Obstetrics, vol. xviii, p. 86.
[15] Bull. Gén. de Thérap., October 15, 1872.
[16] Wiener Med. Presse, Nos. 42, 26, 1876.
[17] Med. Record, August 7, 1875.
[18] Brit. Med. Jour., vol. ii, 1875.
[19] Med. Times and Gazette, January 28, 1879.
[20] Med. Record, January 17, 1884
[21] New York Med. Journal, April 18, 1885.
[22] Deutsch. Klinik. Nos. 26, 27, 1875.
[23] Wiener Med. Presse, Nos. 50, 52, 1876.
[24] Trans. Med. Soc. State of New York, 1878.
[25] American Gynecological Trans., vol. ii, 1877.
[26] Gaillard's Med. Journal, December, 1885.

man,[27] A. D. Rockwell,[28] W. H. Massey[29] and Neftel.[30]

Uterine fibroids have been successfully treated by Dr. Mesière, of Paris, who reported at the International Medical Congress at Copenhagen marvelous results in six cases by the use of electro-puncture. Dr. Apostoli, of Paris, reported at the same Congress the result of two years' treatment upon over 100 cases in which he had succeeded in reducing the size of the tumors and uteri, and completely restoring the patients. J. T. Everett,[31] of Clyde, O., also reports successes in the treatment of these growths. Dr. J. N. Freeman,[32] of Brooklyn, reported three successful cases by the method of electro-puncture. I am, myself, at present able to report the successful removal of two interstitial fibroids of well-marked dimensions, and the gradual diminution of a large subperitoneal fibroid which is still under observation. I will mention in detail these cases in another part of this paper.

Strictures in different parts of the body have done more toward developing electrolysis as a therapeutic measure than all other pathological conditions. Strictures of the nasal canal have been reported relieved. The lachrymal canal has been successfully dilated. M. J. Mercie[33] and M. Mercier[34] each report successful cures of dilation of the Eustachian tube by electrolysis.

Œsophageal strictures yield to electrolysis. Professor Hjorth, of Christiania, reported an interesting case at the last International Medical Congress.[35] Frank, Butler and Prince also report successes. Female urethral strictures have been cured by Dr. Robert Newman.[36] Rectal strictures have also been cured by the same operator.[37] In regard to strictures of the male urethra, if all of the foregoing record fails to convince of the therapeutical and surgical value of electrolysis, the many valuable clinical reports of cure of stricture of the male urethra, by eminent men, can surely leave no doubt in the mind of the most incredulous.

Electrolysis was first used in strictures by Cussel, and subsequently by Millebrand and Werthemer.[38] The first recognized work of importance in urethral strictures was done by Mallez and Trepier.[39] Dr. Robert Newman,[40] the veteran of electrolytic treatment in America, and to whom we owe more than to any other *one* man for the successful development of this method, was at work as early as 1867, and reported results in the *Medical Record* as early as March of that year. From that time to this Dr. Newman has worked, and gradually improved his methods until he is now able to report over 100 cases of permanently cured strictures; that number having been under observation long enough since treatment to warrant the statement "permanent cures." Besides the work of Dr. Newman, much successful work is represented by the reports of F. T. Frank, D. Prince, John Butler, Mynter, Benson, A. T. Douglas, G. C. H. Meier,[41] W. H. Dukeman,[42] J. H. Glass,[43] W. T. Belfield[44] and others. My experience in treatment of urethral strictures with electrolysis is limited to two successful cases.

Thus, briefly, I have given a summary of what has been done in many directions by the rational application of electrolysis. While the object of this paper deters me from going more fully into the details of the general subject, it presents much of great interest and value.

My experience with electrolysis, with the exception of the two cases already mentioned of stricture of the urethra, has been confined to gynecological practice. I have worked on the principles enlarged upon in the first part of this paper, viz.: 1. That a galvanic current of moderate quantity passed through a soft tissue of the body produces electrolytic action all along its course. 2. That a process of rapid absorption is produced in the parts so acted upon. 3. That the normal tissues, while the least susceptible to the current, and therefore least liable to be chemically decomposed, are, *if decomposed* and absorbed, almost immediately replaced by the inherent property of healthy tissue to repair itself. 4. That pathological tissue is usually of lower vitality than normal tissue, is more easily decomposed by the current, and when *it is decomposed* and its absorption accomplished it has not the power to reproduce itself.

The Battery.—The battery used for electrolysis must be one arranged for intensity rather than quantity. The Bunsen elements of zinc and carbon give the best satisfaction. The fluid should be weak, composed of diluted sulphuric acid and bichromate of potash. The current should be steady. Because of the small quantity of electricity generated by the small cells (great intensity only being necessary), the patient's limit of toleration can be reached without danger of a sponge electrode cauterizing if the battery be in proper order. Of the selection of electrodes I will speak, as the different indications arise, in detailing cases.

The pathological conditions which I wish to discuss, and in which I have received marked beneficial results, and not a few cures, will be included under the following headings:

1. Chronic Cellulitis and Peritonitis.
2. Chronic Ovaritis and Salpingitis.
3. Chronic Subinvolution of Uterus.
4. Chronic Hyperplasia Uteri.
5. Uterine Stenosis.
6. Laceration of Cervix Uteri.
7. Ovarian Cysts.
8. Peri-Uterine Hæmatocele.
9. Uterine Fibroids.

1. *Chronic Cellulitis and Peritonitis.*—Under this head I wish to consider all conditions in which in-

[27] Medical Record, December 24, 1881.
[28] Med. Record, January 19, 1884.
[29] Trans. Amer. Med. Assoc., 1872.
[30] Virchow's Archiv., vol. lxx, p. 171.
[31] New York Med. Journal, April 18, 1885.
[32] Ibid, March 7, 1885.
[33] Medical News, March, 1883, p. 117.
[34] Académie of Médicine.
[35] Newman's "Progress of Electrolysis in Surgery."
[36] Amer. Journal of the Med. Sciences, October, 1875.
[37] New England Medical Monthly.
[38] Beard and Rockwell's "Medical and Surgical Electricity."
[39] De la Guérison durable des Rétrecissement de l'Urethre, par la Galvano-Caustique Chimique. Paris, 1877.
[40] New York Med. Record, March, 1867; August 12, 19, 1882; Trans. Med. Soc. State of New York, 1874; JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, April 25, 1885; New England Medical Monthly, August, 1885.
[41] New York Medical Record, August 16, 1884.
[42] Ibid, January 5, 1884.
[43] Ibid, May 12, 1883.
[44] Paper read before Chicago Medical Society, April 19, 1886.

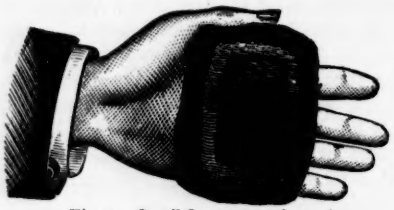


Fig. 1. Small flat sponge electrode.

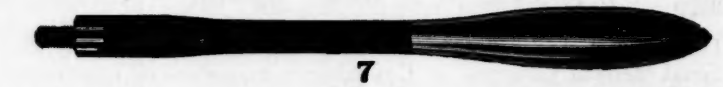


Fig. 2 a.

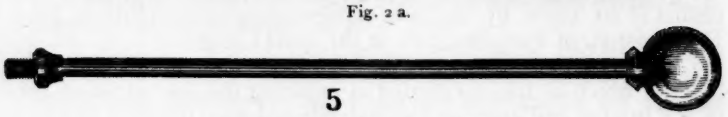


Fig. 2 b. Rectal electrode, straight and ball.

Fig. 3 a. Vaginal electrode, straight and ball.

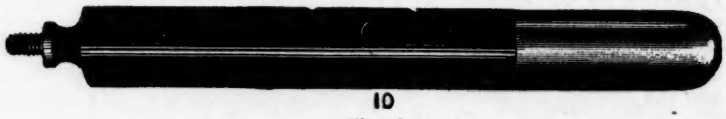


Fig. 3 b.

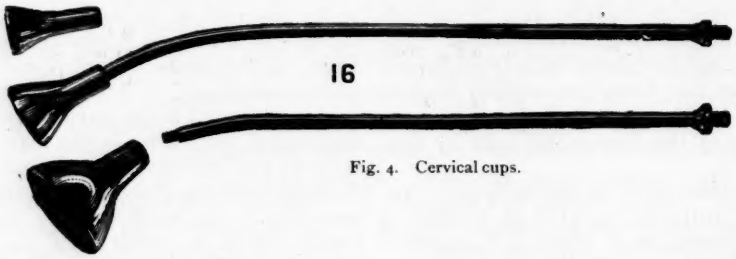
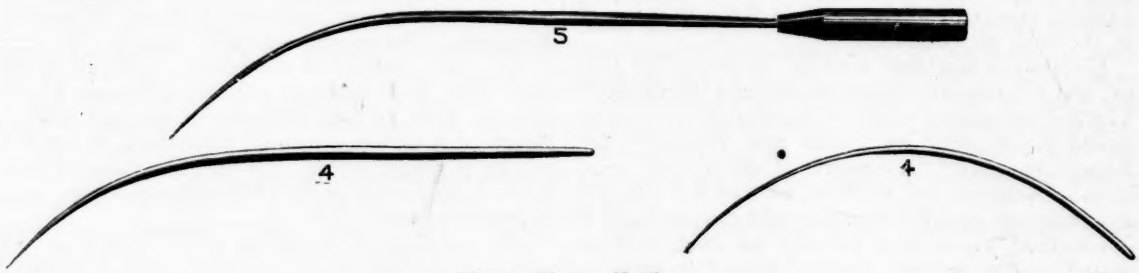


Fig. 4. Cervical cups.

Fig. 5 a. Curved cervical electrode.

Fig. 5 b. Cervical tips.



Figs. 6 a, 6 b, 6 c. Needles.

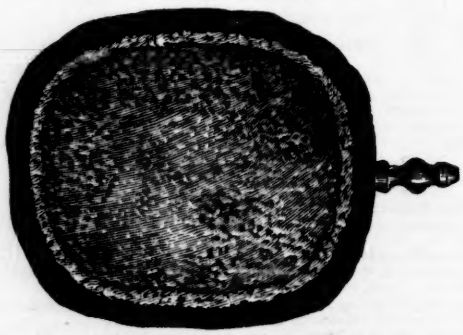


Fig. 7. Very large flat sponge.

flammatory exudates have been deposited in the female pelvis anywhere, caused by a general or local peritonitis, perimetritis, parametritis, or inflammation of the cellular tissue surrounding the uterus and vagina, or in the broad ligaments. Under this head we meet with some of the most aggravating difficulties that the gynecologist is called upon to treat. Among the objective symptoms we find: Hardened, thickened condition of the anterior or posterior wall of the vagina; thickened deposits in Douglas's cul-de-sac limiting the movements of the cervix; thickened masses between the anterior portion of the cervix and the bladder, with adhesions; thick inflammatory masses latterly between the folds of the broad ligaments, displacing the uterus and interfering with its motion; and in many cases we have a general thickening on all sides with an immovable womb and tenderness in every direction. The subjective symptoms accompanying these various conditions are as varied as the objective. Besides the many local symptoms, we may have any or all of the organs of the body controlled by the sympathetic nervous system, involved in a sympathetic distress. The local symptoms include all forms of distress that may arise from interference with the functions of the pelvic organs. Constipation, sacralgia, dysuria, dysmenorrhœa, together with acute neuralgias in regions where twigs of nerves and sensitive nerve-ganglia are imprisoned in the inflammatory exudates.

While one or more of these multiform conditions are met with almost every day, we are almost helpless in our efforts to remove these inflammatory deposits and thickenings after they have become organized. True, we can promote absorption slowly, by the use of hot water, iodine, glycerine, massage, etc., and in cases of small deposits we may get absolute cures. It is in just these cases that electrolysis is indicated. Electrolysis, if properly managed, will promote the absorption of these exudates very rapidly, and in my hands has been the means of relieving a great many very severe symptoms together with their cause. I have a number of cases which properly come under this head, that I have treated with beneficial results, in not only relieving the symptoms for which I was consulted, but in which I also removed the inflammatory deposits. I will give the history of but one in detail, this one being a fair representative of the others.

Case 1.—K. D., aged 20; unmarried. Commenced menstruating at 14. Menstruation was painful from the beginning, and became gradually more painful as she grew older, until she consulted a physician. This was in her 18th year. While under treatment at this time she was taken suddenly ill with severe pain, and was obliged to remain in bed for some days. Before recovering from this acute attack she stopped treatment; was better of her menstrual difficulty, but was troubled with a great deal of soreness in the pelvis. This gradually left her. Her menstrual trouble gradually reappeared. Has had difficulty in passing water—frequent urinating with much pain. Has for some time been troubled in walking; has to bend forward when walking. Constipated; bowels have not moved for some time without medicine. Almost constant backache. Cannot get rest in recumbent position. Almost constant "bearing down" pain night and day. Menstruation very painful, and pain continues all through the flow.

On local examination the external parts were found normal. Lower end of vagina large for a virgin; upper end contracted and hard. Cervix long and immovable at vaginal attachment. Pressure in vaginal vault gives cartilaginous feel with much tenderness. The whole upper part of the vagina is stiff, with uterus almost immovable. By bimanual manipulation the fundus is located in Douglas's cul-de-sac, and only slightly movable. Slight tenderness in ovarian region. Rectal examination shows considerable thickening of its anterior wall. Probe passed with difficulty into uterine canal, and took a backward course.

In this case there seemed to be a general adhesion of all the organs of the pelvis into one immovable mass. It was as though a liquid material had been poured on to the peritoneal surface of the pelvic organs, and after filling all the spaces between the organs had hardened. The patient was well nourished. She suffered excruciating pains while on her feet, and was far from being free from pain when lying down.

With the exception of the hot water vaginal douche, which the patient was using when she consulted me, I gave her no treatment except with the galvanic current. The treatment was applied in such a manner as to include as much of the inflammatory matter in the electric circuit as possible at each séance, and was varied so as to include all in the course of two applications. The external electrode was connected with the positive pole of the battery. This electrode is a flat sponge hand-electrode manufactured especially for me by the McIntosh Galvanic Battery Co., of Chicago (figure 1). It is a flat metal the length of the hand and about two and a half inches wide, covered on its inner surface with sponge, while the outer surface is covered with rubber, over which a wide band is fastened at either end, through which the hand is passed. This electrode is worn on the hand of the operator, and is narrow enough not to interfere with the flexion of the fingers. By means of this the operator can locate the uterus as in bimanual manipulation, and control the direction of the current perfectly. The negative electrodes used were of two forms, and were used on alternating days. One an ordinary rectal electrode of metal, insulated with hard rubber to within one inch and a half of the end, and about one-fourth of an inch in diameter, with an olive point (fig. 2 a); the other an ordinary vaginal electrode of metal, insulated to within an inch of the extremity, with the extremity round and about three-fourths of an inch in diameter (fig. 3 b). When the object is to promote absorption of pathological tissue some distance removed from the negative pole, it is well to have the metal covered with a moist piece of chamois.

The vaginal electrode was introduced into the vault of the vagina, and connected by means of flexible wires with the negative pole of the battery. The hand electrode was controlled by the right hand, as

the current was gradually increased a cell at a time by the left hand. The right hand with the sponge electrode, well moistened, is pressed firmly down over the uterus until the patient felt a smart, burning sensation of the skin. Then the vaginal electrode was pressed firmly into the vaginal vault and kept in one position throughout the *séance*. At different applications it was made to occupy different positions, but was not moved during a single sitting. In these positions the electrodes remained, and the current was allowed to act for ten minutes. Each alternate day the rectal electrode was used, the metal portion pressed firmly against the thickened anterior wall in such a manner as to cause the current to pass through the hardened exudate in the cul-de-sac of Douglas. Thus, in the course of a few sittings all portions of the pelvic cavity affected, helped to complete the circuit of the battery, and obtained the effect of the electrolytic action. This treatment was continued every other day, except through three menstrual periods, for about ninety days.

After a very few sittings the neuralgic pains commenced to disappear. At the end of three weeks there commenced considerable softening of the roof of the vagina. The anterior wall of the rectum became more pliable, and some movement of the uterus could be accomplished without pain. The sacralgia was less severe. At the end of about six weeks the fundus of the uterus could be moved forward with but little pain. The upper part of the vagina could be moved without difficulty, the walls having become soft and pliable. There is still some deposit in Douglas's cul-de-sac, and some immovability of the uterus at the vaginal insertion. The treatment was continued faithfully, although the patient considered herself about cured. At each séance the fundus of the uterus was forced forward by pressure on the anterior rectal wall with the internal electrode, and by forcing the fingers of the hand holding the external electrode behind it, it was crowded forward, and held in its normal position during the entire treatment. The patient improved rapidly; no pain at second menstruation. The inflammatory deposits rapidly disappeared, the uterus remained in its normal position as its adhesions became absorbed. At the end of three months the patient was perfectly well.

When I say perfectly well as far as I am able to judge, I mean *perfectly well* as far as *objective symptoms* as well as *subjective symptoms*, are concerned. This case is so remarkable that I consider it alone almost sufficient to establish the efficacy of electrolysis as a rapid, safe and painless absorbent.

The following case demonstrates the rapid absorptive power of the galvanic current on a large solid deposit:

Case 2.—Mrs. K. Age 28 years. Large, stout woman. One child two years old. Has painful menstruation. Pain in right side, aggravated by walking. Has been sick in bed a number of times since child was born, and at such times is always troubled with right side. The perineum is intact; cervix large and soft, and pointing to the left; uterus large, anteverted, with a left lateral tendency. Attempts to move the uterus increase the side pain. The right broad ligament contains a large, well-defined, irregular mass of material, about 2½ inches in diameter, with a distinct cartilagenous feel. Manipulation produces excruciating pain.

This case was under treatment for eight weeks, and was completely relieved of all pain and all tenderness on pressure. The deposit in the right side was not entirely removed, but it was reduced fully three-fourths, and the uterus became perfectly movable. The treatment was advised continued, but patient left, well enough satisfied to be free from pain. The method was similar to that employed in last case, using the vaginal electrode alone internally. The treatment was used on an average of three times a week.

I might give the histories of other interesting cases of a similar nature, and with equally good results. These cases all vary in minor points, but the principles to be carried out are the same in all. Since commencing this article I have noticed in the *American Journal of Obstetrics* an article by Dr. Paul F. Mundé, on "Electricity as a Therapeutic Agent in Gynecology." He cites cases similar to the above, in which great relief was obtained and absorption promoted by use of the constant current. Was it not the electrolytic action of the current that produced the relief?

2. *Chronic Ovaritis and Salpingitis* are so intimately connected with all forms of pelvic inflammation that they may almost properly be considered under the head of chronic peritonitis and cellulitis of the pelvis. Ovaritis and salpingitis are so inseparable in their inflammatory diseases that in the late fashionable craze to unsex the woman they have both invariable disappeared together.

In a general pelvic peritonitis the ovaries and tubes seldom escape. They are intimately connected, and when the peritoneum is inflamed it bathes these intimately connected parts with the product of its inflammation, and from this the fibrous and muscular coats of the tubes, and the fibrous stroma of the ovaries, become involved. These inflammatory exudates, in process of hardening, contract, and limit the functional activity of these sensitive organs, and a general pelvic and ovarian neuralgia is the result.

In conditions of salpingitis and ovaritis, with inflammatory deposits, whatever the cause is, I am convinced great relief can be obtained, as far as the removal of deposits will give relief, by the judicious employment of electrolysis. I am certain that in a number of painful and serious conditions of this kind, I have obtained relief. At any rate, the method is well worth trying before advising the removal of the ovaries. True, there is very little relief to be obtained by any other non-surgical procedure.

The following case is a well-marked one of the kind, and one in which I think a cure was effected:

Case 3.—A young married woman, 26 years of age, with no children, consulted me for a pain in her side, which had been gradually increasing in severity for three years. The pain was constant, with excessive exascerbations for two days before each menstrual period, at which time there was also pain, though not so intense, on the right side. There was tenderness

on pressure in the left ovarian region, and if the pressure was persisted in it increased the pain so that it resembled that experienced before menstruation. In the left broad ligament a little body was discoverable which seemed like a prolapsed ovary. It was considerably enlarged and perfectly immovable. The right side was free from tenderness, and contained nothing abnormal. The pain of that side was evidently of a sympathetic nature.

For this patient electrolysis was recommended three times a week. The current that could be borne at the first few sittings was very weak—three or four milliampéres being sufficient to cause increased pain in parts. The vaginal electrode (the negative) was crowded well up on the left side to the vaginal junction, and the external sponge-electrode passed gently over the region externally, so as to include the tender ovary and tube in the circuit. The patient soon became more tolerant of the current, and it was increased within two weeks to as many as fourteen milliampéres. The patient got relief from the first application. The treatment was continued for about nine weeks. After the second week the continuous pain had entirely disappeared, although she suffered some at the first menstrual period. At seven weeks the pain and tenderness had disappeared; the menstruation was free from pain. Upon manipulation the ovary was found much reduced in size, movable, and free from all abnormal tenderness. Treatment was suspended after nine weeks.

The above case is only an example of what can be accomplished by this simple method. This woman had been blistered, morphined, and chloroformed, and had suffered in spite of all. She was in that desperate condition when I saw her, ready to submit to anything, even to having the ovary removed. That would have been the alternative if galvanism had not succeeded. The chronic exudate in the cellular tissue surrounding this ovary and tube was not only removed by the chemical action of the current, but undoubtedly the hypertrophied fibrous tissue entering into their intimate structure was reduced.

3. *Chronic Subinvolution.*—This condition is so frequently met with that I have had numerous opportunities of witnessing the beneficial action of galvanism in its treatment. I have noticed it gradually reduce in size while treating other pelvic conditions with galvanism where it was necessarily brought into the circuit. Paul F. Mundé reports cases of cure of subinvolution. He alternated with the galvanic current the faradic, also slow interruptions of the galvanic current. In such a proceeding the galvanism produced absorption of the excess of tissue, and the faradic, or the interruptions of the galvanic, caused contraction of the remaining muscular fibres. While faradization is more applicable in recent cases, shortly following confinement, before the muscular tissue has degenerated into a fibrous condition, in chronic cases the electrolytic power of the galvanic current is necessary. A. D. Rockwell also reports good effects from the galvanic current in subinvolution.

It is very seldom that an uncomplicated case of chronic subinvolution is found. There are usually other pathological conditions existing that have been active factors in producing subinvolution. If the cause be constitutional of course it should have attention when the local treatment is applied. If it be local (lacerated perineum, lacerated cervix, subinvolution of vagina, etc.), before permanent cure can be established they also will have to be restored.

Case 4.—The following case is one of interest, although it alone would not be convincing evidence in favor of the electrolytic action of galvanism, because of other treatment being used in connection with it. A large well-nourished woman in good circumstances, aged 28 years, has one child six months of age. She has been slow in recovering from her confinement. She consulted me for general pelvic weakness, with "bearing-down pains," painful urination, sacralgia, constipation and excessive menstruation. Her menstruation had reappeared the second month after confinement. The perineum was badly lacerated, the vagina large, and the anterior and posterior walls prolapsed. The uterus was large, the cervix large but intact, with a patulous os. The uterine canal was large enough to admit the index finger to the first joint. The depth of the uterus was three inches. The fundus large and soft, normally located. This patient was given the benefit of a trial of general and local treatment, but with the assurance that I considered the restoration of the perineum would be necessary before a permanent result could be arrived at. She preferred not to submit to an operation until other means had been resorted to. I put her on ergotine and nux vomica internally. Hot water vaginal injections twice a day. Galvanism three times a week, followed by an application of a cotton tampon saturated with glycerine.

The patient improved in strength from the first. The pelvic distress was soon relieved, the backache stopped, and the difficulty in urinating gradually disappeared. The vagina contracted to about normal condition, the uterus rapidly returned to natural size, and the menstrual flow became normal. The uterus, at the end of eight weeks' treatment, with probe measured but two inches instead of three; the large spongy cervix was an inch in diameter instead of an inch and a half; and the large patulous os was closed and presented a natural appearance. The patient was so well after the eight weeks' treatment that she was quite inclined to reproach me for having so persistently recommended perineorrhaphy. The patient was under observation after treatment was discontinued for about eight months, when she became pregnant, and up to that time she had had no return of her former bad symptoms.

The internal electrode used here was a cervical electrode of metal, cup-shaped and insulated except the concavity of the cup (figure 4). This was introduced in such a manner as to have the cup support the cervix uteri. The circuit was closed by applying the hand sponge-electrode over the fundus. A current from ten to twelve milliampéres was tolerated without pain, each séance lasting ten minutes.

4. *Hyperplasia of the Uterus.*—This condition, which in many respects resembles subinvolution, can properly be considered now. It does not necessarily, although usually, occur in women who have

borne children. It may be simply an inflammatory condition of the connective and fibrous tissue in a chronic subinvoluted uterus, or it may be a general hyperplasia of the uterus, caused by the irritation of a lacerated perineum or cervix; or it may be caused from the irritation of repeated menstrual congestions which is made abnormal by a flexion or displacement of the uterus; or an error of nutrition from a general nervous derangement may be the exciting cause. *Whatever the causes are*, we find a large tender uterus, a thickened catarrhal condition of the endometrium, oftentimes an inflamed condition of the cervical glands, with the thick albuminous discharge welling out, and very often a well-marked abnormal displacement from the sheer weight of the organ. The condition is one of hypertrophy of the normal constituents of the organ from congestion and inflammation.

This condition will yield to electrolysis, although I cannot select any *one* well-marked case as an example. I have several times seen this condition yield to the chemical effect of the galvanic current when using it in other connections. In a condition often accompanying this I have seen very pronounced results, and it is worthy of mention because of the unsatisfactory results by the ordinary methods of treatment of the difficulty. I refer to *inflammation of the cervical glands*. This disease, with its characteristic tenacious albuminous discharge, every physician has had more or less to do with. The ordinary forms of treatment where cure is accomplished are harsh, and unsatisfactory in the extreme. Destruction of the deep gland tissue by curetting, cauterizing, or cutting, are the only methods that have heretofore given satisfactory results. These glands can be destroyed, or their condition of chronic inflammation reduced by the effect of repeated applications of a metal bulb of the negative pole of a galvanic battery. I first noticed this condition yield while treating other forms of pelvic trouble with electricity where it was desirable to pass a metal electrode into the cervical canal. One-half dozen thorough applications of this description, using a bulb electrode similar to those used for stricture of the urethra, and gradually increasing the size of the bulb, will, I think, cure the most obstinate cervical catarrh. A current of from fourteen to twenty milliampéres can be used without producing any pain. I pass the bulb of the electrode through the internal os at each application.

5. *Strictures of the Uterine Canal* I have removed by electrolysis in a large number of cases. It was in this condition, at the suggestion of Prof. DeLaskie Miller, of Chicago, that I first used electrolysis. That gentleman had been using it with success for some time before my first attempt. It matters not what the condition is that produces the stenosis, or in what portion of the canal it exists. It has all the advantages over gradual dilation, divulsion or cutting, that electrolysis has in the treatment of male urethral strictures over gradual dilation, divulsion or cutting, viz.: painlessness, permanency, and, in case of gradual dilatation, promptness. There is little danger of producing a peritonitis by electrolysis.

The method of operating on these strictures is very similar to that employed in strictures of the urethra. A small staff of soft metal, covered with hard rubber, upon the end of which one of a graduated set of olive-shaped metal bulbs may be screwed, is used for the uterine electrode. After making out the position of the uterus by manipulation, or by passing a small flexible metal probe, the staff of the electrode is made to conform with the supposed shape of the canal (figure 5). After this a flat sponge-electrode, attached to the positive plate of the battery, is applied to the thigh or abdomen of the patient, the internal electrode is passed into the cervix, either through a Sims speculum or a wide bivalve, and, while the cervix is steadied with a strong tenaculum with one hand, the electrode is guided by the other into the cervix until it finds its first obstruction, the current is gradually increased, while very gentle pressure is made on the electrode, until it passes in the course of the canal all the obstructions. Usually the smallest canal can be passed at the first sitting by a bulb the size of a No. 7 or 8 English catheter. This can be repeated with larger bulbs, if desirable, for three or four times, when it will be found that the canal is permanently enlarged.

(*To be concluded.*)

MEDICAL PROGRESS.

THERAPEUTICS OF TRICHINOSIS.—The value of glycerin in the treatment of trichinosis has been repeatedly alluded to. FIEDLER noticed several years ago, in the preparation of microscopic specimens, that trichinæ and their embryos died at once when brought in contact with glycerin (even if diluted with two to three times its quantity of water). This was evidently the result of the hygroscopic power of glycerin, causing the abstraction of water from the parasites. This fact led Fiedler to treat animals, fed purposely with trichinous meat, with glycerine; but he did not obtain any positive results. Later he exhibited glycerin in several cases of trichinosis in man, and was successful. Mercel also published a case of trichinosis cured by glycerin, so that the profession regards this drug justly indicated in this affection.

In the *Deutsches Archiv für Klinische Medizin*, vol. xxxvii, No. 12, Fiedler recommends the hourly administration of a tablespoonful of pure glycerin in trichinosis, though only in graver cases, as large doses of the drug may produce hæmoglobinuria and other toxic symptoms.

In this instance the employment of Unna's keratine pills, or keratine capsules, which dissolve only in the small intestines, would appear very appropriate. To complete the abstraction of water from the parasites, Fiedler advises to give large doses of alcohol and to prescribe a rigid dry diet. Glycerin may also be injected into the rectum. A powerful purge, though, is to precede all these therapeutic measures. —*Therapeutic Gazette*, June 15, 1886.

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THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, JULY 17, 1886.

"THE FUNCTION OF THE RECURRENT LARYNGEAL NERVE."

Such is the title of the admission thesis of DR. FRANK DONALDSON, JR., of Baltimore, to the American Laryngeal Association, in May, 1886, which may be found in the *American Journal of the Medical Sciences*, for July, 1886. It is a question which has received but very little investigation heretofore, and Dr. Donaldson's discussion of it, with the conclusions drawn from experiments in the Physiological Laboratory of Johns Hopkins University, though short, must be considered as one of the most notable physiological achievements of the year, and a positive addition to laryngeal physiology.

How, and under what circumstances, does the constrictor or respiratory function of the recurrent laryngeal nerve assert itself? How are these functions to be differentiated? The nerve must contain two sets of fibres, innervating muscles of distinct and separate functions; whence do the two sets of distinct impulses come. Such are the questions asked by the writer. And as the filaments of this nerve have a distinct function, is the origin of these filaments as distinct as their functions? The known physiological facts concerning this nerve may be briefly stated as follows: It supplies both phonatory and respiratory muscles—it supplies all the intrinsic muscles of the larynx except the crico-thyroid—but it is chiefly a motor nerve; the internal thyro-arytenoids, the lateral crico-arytenoids, and the transverse arytenoid are adductor (phonatory) muscles of the larynx, and the posterior crico-arytenoids are the abductor (respiratory muscles) of the larynx; and as has just been said, all these muscles receive their nerve supply from the recurrent laryngeal nerve. And the main question is, How is it that impulses travelling along this nerve alternately close and open the glottis? And how can we explain the fact that at one moment the nerve stimulus acts upon the adductors and at the next moment upon the abductors of the larynx.

Dr. Donaldson records nine experiments made upon dogs, the experiments being undertaken to test the following points: 1. Is it true that the constrictors cease to act during profound narcosis, or when consciousness is suspended from any cause? 2. Do we always get abduction of the arytenoids (dilatation of the glottis) on stimulation of the recurrent nerves, when consciousness is suspended? His interest in this subject had been awakened by the conclusions of Dr. F. H. Hooper, of Boston, "that stimulation of the recurrent laryngeal nerve always produced abduction of the arytenoid on that side, provided the animal was deeply under ether; that on removing the anæsthetic, the dilatation produced by stimulation became less and less as the animal regained consciousness, until finally contraction of the glottis followed; and that the abduction differed in different dogs. In other words, he concludes that the tendency of the glottis is to remain widely open, and that any given stimulus from the recurrent nerve would act upon the abductor muscles alone unless volition came into play, when the stimulus would produce the opposite effect and produce adduction." In the first five of Dr. Donaldson's experiments it was found that under no conditions was abduction of either or both cords obtained, except where the branch of the recurrent going to the posterior arytenoid itself was excited. In all cases adduction of the arytenoid was obtained, however deeply the animal was under the anæsthetic. In two cases it was found that when the animal was made thoroughly apnœic, and when for some seconds there was neither glottic nor respiratory movement, adduction was the result of stimulation; and in two cases, *after the animal was dead*, though of course before the death of the nerves or muscles of the larynx, stimulation caused closure of the glottis. "Under all these conditions of unconsciousness and narcotism, then, was *adduction* produced. This result followed, in these experiments, stimulation of the cut and uncut nerve; and followed chemical and mechanical, as well as electrical, stimulation." And in still another experiment, in which the branches of the recurrent to the individual muscles were dissected out and stimulated equally, none showed a tendency to a more rapid degeneration than another.

From these results it seems that the following conclusions are perfectly legitimate: 1. The constrictor muscles of the larynx do not cease to act during pro-

found narcosis or during suspension of consciousness from any cause; their action is independent of volition, in the sense that they lose their power during suspension of volition. 2. Abduction of the arytenoids does not always follow suspension of consciousness. Under what considerations, then, asks Dr. Donaldson, do we get abduction of the cords upon stimulation of the recurrent nerve? There must be some conditions, since abduction was obtained by Dr. Hooper, who thinks suspension of volition one condition under which stimulation of the recurrent caused abduction. Dr. Donaldson thinks that he has discovered the conditions under which the abductors act. He found that: 1. The abduction obtained by Hooper was in no way reflex. 2. Abduction is in no way dependent upon the unconsciousness of the animal. 3. It is with weak stimuli only that abduction of the cords takes place, which movement of abduction gradually passes into one of adduction as the strength of the stimulus is increased. 4. This result invariably followed, whether the animal was slightly, deeply, or thoroughly narcotized; whether the animal was eupnœic or apnœic, when the dog had his medulla destroyed, and after local death had taken place. 5. The rate of stimulation did not affect the general result. 6. After strong and constant stimulation the abductor muscles became worn out and ceased to respond to stimuli. 1. In apnœa the cords came nearer the middle line, the abductors receiving no stimulus in this condition from the respiratory centre. "Here then, I think we have a suggestion as to the innervation of the muscles of the larynx." Dr. Donaldson agrees with Dr. Hooper that the assertion that the abductor fibres of the recurrent are prone to disease is unwarranted. "The clinical fact may be explained, however, by the theory of the greater irritability of the abductor muscle or nerve fibres. For in cases of unilateral lesion of the cords from an aneurism or tumor, the constant pressure exerted by either, acts as a mechanical stimulus to it, and the more irritable abductors are, therefore, the first to show the result of this constant stimulation, in their loss of function."

Dr. Donaldson would explain the innervation of the larynx somewhat as follows: Though the diaphragm and all the other muscles employed in respiration are voluntary muscles, breathing is really an involuntary act; and though we may modify respiration by the will, respiration habitually takes place without the intervention of the will. As the larynx is an essential part of the respiratory apparatus it must receive impulses from the respiratory centre in the medulla. It is necessary that the glottis be kept open, and we find that the cords are pulled slightly away from their apparently normal position between extreme abduction and extreme adduction at each inspiration, even in normal breathing. "The fact that in deep narcosis the cords are pulled widely apart would seem to show that stronger stimuli than usual are proceeding from the respiratory centre to the abductor muscles; for in all deep narcosis the tendency is towards dyspnœa, and always in this condition normal respiratory muscles are called into greater play. The constrictors of the larynx are apparently always in a state of partial tonic contraction, and ready for use at any moment. I found that in every case where the dog was thoroughly apnœic that the cords came much closer together than in normal breathing; and this, it seems to me, is what we might expect, for in apnœa the respiratory centre is at rest; and the respiratory function of the larynx being for the moment in abeyance, the protective or constrictor function of that organ asserts itself." He thinks, then, that both the respiratory and constrictor or (protective) functions of the glottis are governed by those laws which govern the rest of the respiratory apparatus. "There seems to be a similarity between the nerve fibres of the recurrent and those of the pneumogastric, and we are inclined to think that the great irritability mentioned above is in the nerve fibres supplying the abductors; the two sets of fibres of the recurrent supply opposite sets of muscles, and may be likened to the two sets of fibres composing the pneumogastric —the one answering to less, the other to stronger stimuli." Finally, he thinks that the constrictors of the larynx, which need a stronger stimulus to set them in action, may find that stronger stimulus in the numerous reflexes which arise on the introduction of a foreign body into the larynx.

EDUCATIONAL.

We are pleased to notice the frequent endowments given to the colleges and universities in this section of the country. During the last few years the Northwestern University has been particularly fortunate. Its fine location in Chicago's prettiest and most flourishing suburb, and its prudent financial policy, has attracted the attention of many wealthy men, and has led them to endow it liberally. During the last few years it has received two hundred thousand dollars, which has enabled it to clear off its old indebtedness and leaves it with a million and a half of property, much of which is rapidly increasing in productivity.

The latest gift, made within the past three months

by one who wishes to remain for the present unknown, is most timely. It consists of forty thousand dollars with which to erect a Science Hall for the accommodation of the departments of Physics and Chemistry. These departments have grown rapidly and their laboratory rooms have been cramped and uncomfortable. The walls of the new building are already well up. Its erection by the Northwestern University for these departments constitutes an epoch in the history of science at Chicago. It is the first building specially erected for instruction in these sciences in the city or its suburbs. The building is a double structure having a frontage of 130 feet, and a depth of 114 feet. The department of chemistry has its entrance in the left front, and occupies the left half of the building. The department of physics has its entrance in the right front and occupies the right half of the building. The structure is of two stories. The basement is built of stone, rock-faced. It is fourteen feet high and entirely above ground. On the outside, above the stone, is a water table of terra cotta. Above this is the chief story, 16 feet high, the walls of which are of red brick. The whole height from the floor of the basement to the ridge of the roof is 56 feet.

The basement will be occupied by the heating apparatus and the steam power which will drive a dynamo and some machinery. For the department of chemistry it contains a laboratory for organic chemistry, a mineralogical laboratory, a store room, a general work room, a cloak room and a toilet room. For the department of physics the basement contains three special laboratories and two work rooms.

The main story contains in the department of chemistry a lecture room, a large general laboratory, a laboratory for quantitative analysis, a directors' room, a special apparatus room and a store room.

In the department of physics is a lecture room, a general laboratory, an apparatus room, a directors' room, a balance room, a dark room, a toilet room and a general work room. These laboratories have been planned by men who have worked in the best laboratories in this country and in Europe, and the plans have been submitted for the criticism of the prominent professors in other institutions in this country. It is believed that the result leaves little to be desired. The expense of the building is $41,000.

The facts and the principles given to the student in lectures and in books will be verified by the student himself in these laboratories. The inductive sciences can be successfully studied only by experimental methods. The training of the mind in the inductive logic of the age, "the interpretation of indications," *must be* in the laboratory—it cannot be by means of books. The College of Liberal Arts of this University, through its elective studies, gives to all students no matter what degree they seek, an opportunity to obtain this training. The new Science Hall, together with the recently established Biological Laboratory, places the scientific departments of this institution on a most excellent basis.

Its professional schools, consisting of the College of Medicine (the Chicago Medical College); the Union College of Law; and the College of Pharmacy, are located in Chicago, and are equally enjoying a good degree of prosperity. The practical laboratories of chemistry, histology and pathology belonging to the College of Medicine are among the best in this country. All these facts show that the Northwestern University with its several departments is an imposing institution, with a broad and stable foundation and a bright future.

EFFECT OF DRASTICS ON THE INTESTINES.

M. Lucien Butte three years ago concluded a series of experiments which were made in order to clear up the question as to the action of drastics on the intestinal mucous membrane of dogs. The experiments were made with colchicine, veratrine, croton oil and colocynth.

When colchicine was given hypodermatically or by the stomach it was found that it produced active inflammation of almost three-quarters of the small intestine, which showed a deep red color, with dark disseminated submucous hæmorrhages. About the middle of the duodenum were ulcerations as well defined as though cut out with a punch, the blanched color of which contrasted strongly with the red color of the mucous membrane. There were no traces of hyperæmia in the large intestine. These results, though in accord with the experiments of Roy, have been partly weakened by those of Pouchet, in a paper read by him before the Société de Médecine Légale de France, in February last. Pouchet made his experiments practically under the same conditions as Butte, found no hyperæmia or effusions of blood, and thinks that the ulcerations should be attributed to some other substance than colchicine.

As regards veratrine Butte confirmed the results of Vulpian, published in his "Leçons sur les Substances Toxiques et Médicament euses." When veratrine is given either subcutaneously or by the stomach daily it has a very marked action upon the intestinal mucous membrane: the first half of the small intestine, especially the duodenum, is hyperæmic and has a rose color. The duodenal mucous membrane is the

seat of many oval ulcerations of a yellowish white tint, with a peripheral border and a central elevation. The large intestine is only slightly reddened. There are no large submucous ecchymoses; it is all limited to increased vascularity and slight effusions of blood. The inflammation is thus much less severe than in case of poisoning by colchicine.

On the small intestine croton oil has a very marked effect, but none on the large intestine. When given subcutaneously death results at a later period than when given by the stomach, and the intestinal epithelium, which is seen to be strongly colored by the biliary coloring matters, is so altered that small ulcerations are seen; showing that even when given subcutaneously croton oil has a selective action on the intestine, by which it appears to be eliminated. Death rapidly follows the injection of the oil into the stomach, preceded by vomiting and diarrhœa. The intestine is very violently irritated, much more so than by either colchicine or veratrine. More than half of the intestinal mucous membrane is of a uniform blackish red color, and there are extensive submucous ecchymoses. About the middle of the duodenum are seen a number of small superficial ulcerations.

The experiments made with the extract of colocynth were made in accord with those of Orfila. Singularly enough, this is the only one of the four drugs which produces changes in the mucous membrane of the large intestine; it causes alterations which are found almost throughout the whole extent of it. The most striking appearance is the presence of longitudinal red bands regularly placed along the whole length of the large intestine. On the small intestine the action of colocynth is much less intense. With this drug, as well as with veratrine, it is difficult to produce toxic symptoms when the drug is administered by the stomach.

Butte thinks that these experiments show that the drastics have a distinctive action upon the intestinal mucous membrane, which is peculiar to themselves, yet differing from one another in this action. While this may be true so far as is known, it scarcely seems proper to draw too definite conclusions as to what may be predicated in a medico-legal case involving these questions, since there may be other drugs which will produce analogous effects. The question may be an important one, however, and it is a field which might develop positive additions to our knowledge.

MEDICAL WRITERS AND TYPE-WRITERS.

While the type-writer cannot be included in any list of drugs, nor found in any catalogue of surgical instruments, it must nevertheless be regarded as an adjuvant to good writing, and as a direct antagonist to bad temper, and should form a part of the armamentarium of "instruments of precision" of every one who does much professional writing. If each medical writer in the country—in the world—could spend one week in an editorial office and pass the time in reading manuscripts, the manufacturers of these instruments would acquire sudden and unprecedented wealth. Those who are in the habit of reading manuscripts know that writers vary, in regard to writing material, from the type-writer and new steel pen to the gold pen, the stylographic, the bad steel pen, the quill, the pencil, and (presumably) the walking-cane. It seems to be an immutable (and very unfortunate) law—whether psychological or not we need not stop to consider—that many who use quills, pencils and canes, and those who write illegibly generally, have in some way acquired a habit of discarding the accepted spelling of many words, and differ materially with certain good authorities on capitalization.

There are several reasons why medical men who write should use the type-writer. In the first place as a matter of economy of time, and hence, often, of money. It is easily seen that there is a great saving of time with a machine which will do a piece of work in one-half or one-third the time that it can be done by hand; and this is easily accomplished with a type-writer. In the second place, the machine promotes accuracy, especially in thinking, for two reasons: being more rapid than the pen, the thoughts of the writer do not wander so far ahead of his work; and should he wish to refer to what has been written he can see it at a glance, as on a printed page. A third reason is, the person who uses a type-writer sits erect, and can thus work for a longer time without fatigue than when bending over as in writing with a pen. It is thus more wholesome than the pen. The machine further promotes accuracy in the printing office—a great source of comfort to writers; and it promotes a degree of accuracy on the part of the writer in that he will not be able to make a wavy line or two or three letters and an apostrophe do duty for a long word, and his punctuation marks, if not more correct, will at least be less numerous. With a machine, therefore, writing becomes a pleasure, with none of the discomforts accidental and incidental to the use of the pen.

SURGEON-GENERAL ROBERT MURRAY, of the U. S. Army, will be 62 years of age in August of the present year, when he will be placed on the retired list.

Dr. Murray will soon have completed a long, efficient and most honorable term of service for his country. It is thought that Surgeon J. H. Baxter, who stands next on the roll, will be the worthy successor.

INTERNATIONAL MEDICAL CONGRESS INTERESTS ABROAD.—In Vienna, Austria, a local committee of twenty-five members has been formed for facilitating arrangements for attending the Ninth International Medical Congress in Washington, 1887.

IT IS stated in one of our exchanges that Professor James F. Harrison has resigned the chair of Practice of Medicine and Obstetrics in the University of Virginia, which he had held for several years past.

SOCIETY PROCEEDINGS.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, March 25th, 1886.

THE PRESIDENT, J. C. WILSON, M.D., IN THE CHAIR.

W. E. HUGHES, M.D., RECORDER.

DR. H. F. FORMAD read a paper on

INTRA-CRANIAL HÆMORRHAGE; RECORD AND CLASSIFICATION OF 143 CONSECUTIVE FATAL CASES OBSERVED IN MEDICO-LEGAL PRACTICE AND IN PRIVATE AUTOPSIES IN PHILADELPHIA.

There existed, he said, no well-defined descriptions of the various forms of intra-cranial hæmorrhage with reference to their etiology, and no classification that could be of any service in medico-legal examinations, and Dr. F. suggested the classification and observations presented below as particularly adaptable for the latter purpose. These records may also be of some use to the surgeon who wishes to trephine. The observations were sufficiently numerous to warrant conclusions of importance for various ends. He regretted that he met his cases on the autopsy table only, and hence was unable to offer clinical details. In some cases the history was far from being reliable, and in a few the history was left to conjecture from surroundings, the circumstances of the case, and the appearance and general lesions of the body. He wished to give credit to his colleague in coroner's work, Dr. R. R. Stewart, whose assistance in these observations he enjoyed, and also to his assistants, Drs. A. J. Plummer and George H. Chambers. Dr. Formad's cases of intra-cranial hæmorrhage embrace the results of various kinds of head injuries (traumatic), and cerebral apoplexies (idiopathis hæmorrhages) as well. By the term cerebral apoplexy he meant exclusively hæmorrhage in the brain, and did not refer to congestive, serous, embolic, or nervous apoplexies, and other affections which tyrannic nomenclature has thrown together under the name of apoplexy.

Idiopathic cerebral apoplexy should also be strictly separated from traumatic (this is *not* done by many writers). The latter can be further subdivided into very well defined sub-varieties of hæmorrhages, each etiologically distinct, as will be shown below. These observations will clearly show the necessity and usefulness of a classification such as suggested. There should never be any reasonable doubt at the post-mortem table as to whether a cerebral hæmorrhage was due to disease or to injury, or to both combined; nor as to whether a head injury preceded or followed an intra-cranial hæmorrhage. Dr. F. believed that the diagnosis between the conditions stated was much much more difficult during life. He had seen errors made by foremost surgeons and physicians in the best hospitals in Philadelphia. Dr. Formad had seen cases of apoplexy diagnosed as fracture, and trephined, and he had seen cases of fracture of skull unrecognized and untouched, left to die in the medical wards.

Upon the post-mortem table, however, there should be no difficulty in diagnosing such lesions at the present status of morbid anatomy as a distinct and well-defined science. After sufficient accurate observations have been made and after seeing conditions to repeat themselves, case after case alike, and having in the majority of instances cause and effect directly before the eyes, one should be able, in disputed cases, to make a post-mortem diagnosis which leaves but little room for doubt.

Dr. Formad divided the cases of intra-cranial hæmorrhage observed by himself into the following eight different classes.

Class I; 12 Cases. Post-mortem Appearance.—One or more small hæmorrhages in the fasculi teres of the fourth ventricle; also, ecchymoses in the lining of the other ventricles (no massive hæmorrhage anywhere) cerebral substance as well as membranes intensely congested. Cranium much congested; drops of blood oozing from cut surface and from periosteum. Marks of contusion in scalp, with more or less ecchymoses, noted in all cases.

Histories.—In two cases death was caused by electricity (details will be recorded elsewhere). Ten cases revealed concussion of brain from injuries to head, without fracture of skull. Death was rapid or sudden from shock in all these cases. Six were males and six females; the majority were young persons.

Class II; 23 Cases. Post-mortem Appearance.—Massive hæmorrhage (blood-clot) of various sizes found between pia- and dura-mater, location in the majority of cases about opposite to place of application of violence. In none of these cases was the meningeal blood-clot located immediately beneath the point of application of violence. Ventricular ecchymoses also found usually. Brain anæmic in proportion to quantity of hæmorrhage. Scalp injury well marked in some, in others less so, while in a few cases it was hardly noticeable.

Histories.—Concussion from injuries to head without fracture in twenty-one cases; with fracture of skull in two cases. Death rapid (all within one hour) or sudden either from shock or from compression of

brain, the result of pressure from clot, or from both. Fourteen males, nine females; ages varied.

Class III; 45 Cases. Post-mortem Appearance.—Massive hæmorrhage (blood-clot) usually quite large, located between dura-mater and inner surface of fractured skull, and at the site of application of violence only. Brain anæmic.

Histories in all these cases revealed injuries to skull from accidents, blows or other violence, resulting in fracture of skull. Death on the average ensued slowly from compression or anæmia of brain in the lapse of from several hours to several days (in a few cases five to eight days). Thirty-eight males and seven females; majority young and middle-aged persons.

Class IV; 12 Cases. Post-mortem Appearance.—Massive hæmorrhage, the same as in the preceding class, but occurring both at site of application of violence and also at some point on apposite side of skull the first, a large clot between dura-mater and scalp, while the latter in the arachtoid (between dura- and pia-mater), and usually small. At the site of injury there was found a fracture of the skull in all these cases, so that they presented the combined features of Classes II and III.

Histories in these twelve cases observed, showed injury to skull resulting into both fracture and concussion. Death was nearly instantaneous in all these cases. Nine were males and three females, mostly young and middle-aged persons.

Class V; 9 Cases. Post-mortem Appearance.—Punctiform and multiple hæmorrhages into the tissue of the dura-mater, which showed much thickening and adhesions to inner surface of skull from chronic hæmorrhagic pachymeningitis; great œdema of the pia-mater. Brain congested, but no blood-clots within cerebral substance.

Histories in these cases revealed former attacks of sunstroke or old injuries of head. Death usually sudden and usually following a fall or severe intoxication and excitement. Ages of deceased, between 20 and 50 years; all males.

Class VI; 34 Cases.—Massive hæmorrhages of various sizes into the brain-substance proper and thence into one or both of the lateral ventricles. Hæmorrhagic softening of brain-substance of corpora striata or their vicinity. No meningeal hæmorrhage in any of these cases, though in some blood was observed to have leaked out from the inner ventricles through the transverse fissure and fourth ventricle, and some usually liquid (post-mortem) blood would be seen in the cerebral fissures upon periphery in the meshes of the pia-mater and aradinoid. Brain-substance in nearly all cases quite anæmic. Atheroma of cerebral vessels in all but three cases. Multiple small aneurisms of cerebral vessels noted in several cases. Chronic pachymeningitis in various degrees in all but five cases. In some cases there were scalp injuries from secondary falls, *i.e.*, falls that were the result of preceding cerebral hæmorrhage. Many of these cases came under coroner's jurisdiction on account of suspicion of violence.

Histories, wherever obtainable, revealed either alcoholism, rheumatism, or syphilis; middle or advanced age. Twenty-six males, eight females. Death in the majority of cases ensued slowly. These are true cases of idiopathis cerebral apoplexy.

Class VII; 6 Cases. Post-mortem Appearance.—Massive hæmorrhage of various size, below pia-mater, into brain-substance, without breaking into lateral ventricles. In one case the blood-clot involved the substance of the pons and protruded into fourth ventricle; in two cases it occupied the substances of the right parietal lobe, which was the seat of an abscess; in three cases the hæmorrhage was multiple, in small foci, with localized hæmorrhagic softening of periphery of brain-substance in various places. In three cases there was atherema and in the other three fatty erosions of the cerebral vessels. Chronic pachymeningitis in all cases. Brain-substances congested.

Histories were those of former head injuries, alcoholism and probable syphilis. Death rapid, following intoxication, or exertion. Age advanced in all cases. Five men, one women. Foul play had been suspected in all these cases.

Class VIII; 2 Cases. Post-mortem Appearance.—Massive meningeal hæmorrhage below pia mater, combined with hæmorrhage into ventricles; no visible hæmorrhage into brain-substance. Atheroma and multiple; small aneurisms of vessels of pia and of choroid plexus. Echymoses in scalp.

Histories of accidental falls. No previous symptoms of cerebral disease had been noted. Intemperate habits; injury of the head leading to rupture of the diseased vessels evidently had preceded the cerebral hæmorrhage. The persons were at work (washing) at the time, when nearly simultaneous with the fall death ensued. Both were women; ages 57 and 63 years.

A number of cases of intra-cranial hæmorrhage observed by Dr. Formad he had excluded from the series above detailed. Several cases of compound comminuted fracture in which the skull, membranes and brain were partly pulpified into a mass and hence the hæmorrhage not being satisfactorily made out, were excluded from the above records. He also excluded chronic cases of cerebral hæmorrhage, and those resulting in abscesses or a fatal lepto-meningitis or cerebritis, after the patients had partly recovered from the immediate effects of the hæmorrhage. Dr. Formad did not incorporate into these records another large class of intra-cranial hæmorrhage, viz.: that of infantile meningeal hæmorrhage. Of these he had seen many in coroner's work. Meningeal hæmorrhage is common in infanticides and fœticides; and even in still-born children. Dr. Formad could not plausibly explain the frequency of meningeal hæmorrhage observed in still-born, otherwise than presuming that they were due to traumatic injuries from violence or to compression of the cranium during protracted labor, or when forceps had been injudiciously applied. He did not meet with cerebral hæmorrhage in children other than meningeal.

Returning to his classification, Dr. Formad stated that the quantity of the hæmorrhage or the size of the clot in any case of intra-cranial hæmorrhage appeared, in all the cases he observed, to depend upon the duration or the time that elapsed from the mo-

ment of injury to death. In cases where death ensued rapidly or instantaneously from shock, like in many fatal cases of concussion, or even in fractures of skull followed by immediate death, like in falls from a great height, the bulk of the ante-mortem hæmorrhage (the blood-clot) was remarkably small; or clots were occasionally entirely absent, and only a post-mortem oozing of liquid blood could be observed. When death is protracted for several hours, then the blood-clot was usually large, weighing up to six or eight ounces, and causing death by compression of the brain. In some cases of fracture of the skull the hæmorrhage is probably delayed for several hours, or ensues but very gradually. Some patients are said to have walked around for many hours after the injury, and subsequently, when the blood oozed out in sufficient quantity to compress the brain, they fell, became unconscious, and died in coma. In one case of this nature he had found a meningeal clot weighing eight ounces.

Dr. Formad observed that in the cases in which the intra-cranial hæmorrhage was voluminous and death instantaneous there was very little scalp ecchymoses; whereas scalp hæmorrhage was more pronounced if the intra-cranial hæmorrhage was small and death delayed.

Further, Dr. Formad noticed that in no case where there was internal cerebral hæmorrhage, was there any meningeal hæmorrhage when cerebral vessels were normal; and in no case of traumatic meningeal hæmorrhage did he see any coincident ventricular hæmorrhage (except small ecchymoses), unless there existed some old lesion of the vessels or substance of brain. It appears, however, that blood from the lateral ventricles may leak through the foramen of Monroe into the third ventricle and thence by the aqueduct of Sylvius find its way into the fourth ventricle, but Dr. Formad did not see in any one of the cases he observed that a primary hæmorrhage into the fourth ventricle ever extended to the lateral ventricles, probably on account of its rapidly fatal character. A hæmorrhage on the outside of an uninjured pia-mater cannot reach the interior of the brain or the lateral ventricles.

The source of the hæmorrhage is often very difficult to determine. In fracture of the skull, the hæmorrhage is often diploic; in concussion of the brain the hæmorrhage has for its source the vessels of the pia-mater: in diseased conditions of the brain or in atheroma of vessels the small feeding branches of the middle cerebral and of the basilar artery bleed most frequently, and the blood breaking into lateral ventricles forms clots in either one or both of the ventricles.

The views expressed by Dr. J. A. Lidell in his large "Treatise on Apoplexy" (New York, 1873, p. 133), that "meningeal hæmorrhage not unfrequently occurs spontaneously, as well as in consequence of the operation of violent causes," and that (see page 120) "meningeal hæmorrhage of spontaneous origin is not a rare affection," is unquestionably erroneous. Yet such "views" are quoted by writers on forensic medicine and presented to juries in murder trials as facts. Ignorant post-mortem examiners can set murderers free, or on the other hand create unnecessary court-trials.

Dr. Formad's conclusions were:

1. Hæmorrhages exclusively above the pia-mater and above the dura-mater, *i.e.*, on the outside of the brain, are always due to *traumatism* or to *sunstroke*, provided a cerebral source for hæmorrhage is excluded and the cerebral vessels and membranes are not diseased.

2. Hæmorrhage in the floor of the fourth ventricle is always traumatic, provided there are no blood-clots in the lateral ventricles or any other part of the cerebral substance.

3. Hæmorrhage exclusively below the pia-mater, or in any part of the brain-substance or in the ventricles (except the fourth), is always idiopathic, *i. e.*, is due to disease.

4. A diseased condition of the cerebral vessels or substance is necessary in order to ascribe a hæmorrhage to disease; there must be traumatism (some form of violence or falls) in order to induce a hæmorrhage in a normal brain.

5. The blood-clot in concussion of the brain is not found at the point of application of violence, but always somewhere about the opposite side of the brain, and always within the arachnoid, *i. e.*, between pia- and dura-mater.

6. The blood-clot in fracture of skull is always found at the point of application of violence immediately below and always between the dura-mater and the fractured part of the skull itself.

7. A blood-clot formed within the cranial vault is more favorable to the patient if due to fractured skull than if due to a mere concussion.

8. Only clotted blood and infiltration of blood corpuscles into tissues indicates an ante-mortem hæmorrhage; liquid blood is due to post mortem oozing, and only stains, but does not infiltrate tissues.

9. Severe bruises and cuts of the scalp may be seen in cases of idiopathic apoplexy where a sudden cerebral hæmorrhage causes a person to fall.

10. In some cases it is impossible to decide by medical examination alone as to whether a head injury and the result is due to a fall or to violence.

11. External marks of violence may be invisible to the unaided eye in some cases of injury of the head or other parts, but are easily detected and also distinguished from post-mortem spots by means of the microscope.

12. The bulk of an intra-cranial hæmorrhage stands usually in inverse ratio to that of the external hæmorrhage into scalp.

Dr. T. D. Dunn presented an unusual case of

CORTICAL HÆMORRHAGE WITH RHYTHMICAL CONTRACTIONS OF THE LEFT SIDE OF THE BODY.

A widow, æt. 73 years, came under his care June 23, 1886, with symptoms of congestive apoplexy. In a few days she recovered sufficiently to be able to leave her room. With the exception of some mental impairment for several months before the attack her health had been good. There was a second attack during the night. When Dr. D. saw her there were regularly recurring movements of the left side of the

body. Sensation and consciousness were not affected. The right side of the body could be moved at will, but articulation was impossible. The contents of bowels and bladder were discharged involuntarily. The movements continued during sleep. The movements gradually diminished, being lost in the leg on the fourth day and in the arm on the fifth. She died six days after the attack. At the autopsy a clot as large as a hen's egg was found situated on the right side of the brain, very superficially, extending from the ascending parietal convolution to the occipito-parietal fissure, and from the convolution of the longitudinal fissure to the tempero-sphenoidal lobe. The convolutions pressed upon and partially destroyed were the ascending parietal, the convolution of the longitudinal fissure, the supra-marginal, and the angular gyri.

DR. F. A. PACKARD presented a patient having a

CONGENITAL ANOMALY OF BOTH HANDS.

The right hand consists of a thumb, an index and a little finger, with only two metacarpal bones. The thumb has two phalanges and articulates with the same metacarpal bone as the index finger. The power of flexion is absent. The index finger has three phalanges. It can be flexed as a whole, but the individual phalanges are fixed. The little finger has three phalanges. The left hand consists of a thumb, index, ring, and little fingers, with four corresponding metacarpal bones. The patient is one of five children. His mother and father are normally formed; one sister has one hand that resembles his left; another has a left hand similar to his, and on the right hand has the middle and index fingers united throughout their entire length; one brother has both hands similar to this man's left. The only member of his generation not deformed is his twin brother. He has several children, all normally formed, and so, too, with his nephews and nieces.

DR. J. M. BARTON presented a

TUMOR OF THE STOMACH,

removed from the body of a man æt. 47 years. His digestion became impaired two years ago, and soon afterward he noticed the tumor. The symptoms were mainly those of chronic gastritis, with at one time a profuse hæmorrhage. The tumor was hard and well defined, and occupied the epigastric region. At the autopsy the tumor was found occupying the upper portion of the pyloric outlet of the stomach; did not encroach enough on the outlet to prevent the passage of a finger. It was found, on microscopic examination, to be be a scirrhus carcinoma.

CHICAGO MEDICAL SOCIETY.

OFFICIAL REPORT.

Stated Meeting, June 21, 1886.

THE PRESIDENT, E. J. DOERING, M.D., IN THE CHAIR.

DR. FRANK E. WAXHAM read a paper entitled

INTUBATION OF THE LARYNX AS A SUBSTITUTE FOR TRACHEOTOMY, WITH A REPORT OF 83 CASES.

The author referred to the various modifications that had been made in the instruments within the past year. First, the enlargement of the heads of the tubes to prevent slipping into the trachea; second, the addition of a shoulder to prevent their expulsion; and third, a very important modification consisting of the construction of the tubes with thinner walls, giving greater breathing space and a better opportunity for the expulsion of false membrane. The author also presented a feeding bottle useful in those cases where they entirely refuse to take nourishment, as they will do occasionally, and also a trachea forceps for the purpose of removing false membrane by way of the mouth when there is detachment below the tube, or when it is pushed down ahead of the tube and cannot be expelled.

The author thought that the first question that would arise, in considering whether we had a substitute for tracheotomy in tubage of the larynx, would be as to the comparative success of the two methods. By personal inquiry and by correspondence he had collected reports of 306 cases of tracheotomy performed in Chicago with 58 recoveries, or a percentage of 18.95. The average in 138 cases was 5 years and 1 month.

In contrast to these statistics the author reported 83 cases of intubation with 23 recoveries, or a percentage of 27.71. The ages were as follows:

No. of Cases.	Age.	Recoveries.
1	9 months	0
1	11 months	0
1	13 months	0
3	14 months	1
1	15 months	0
1	16 months	0
1	17 months	0
1	18 months	1
1	20 months	1
7	2 years	2
2	2 years and 1 month	1
2	2 years and 2 months	1
2	2 years and 3 months	0
3	2 years and 6 months	1
1	2 years and 9 months	0
12	3 years	2
1	3 years and 4 months	1
1	3 years and 6 months	0
11	4 years	5
1	4 years and 9 months	1
3	4½ years	0
9	5 years	4
6	7 years	1
1	7½ years	0
2	8 years	1
1	11 years	0
7	—	0
83		23

Average age, 3 years and 7 months.

It will be observed that 11 cases with 3 recoveries were under 2 years of age; 28 with 8 recoveries under 3 years; 14 cases with 3 recoveries between 3 and 4 years; 15 cases with 6 recoveries between 4 and 5 years; 9 cases with 4 recoveries between 5 and 6 years, and 10 cases with 2 recoveries between 7 and 11 years.

Many of these cases were young nursing infants,

and many were delegated to him because they were too young or too unfavorable for tracheotomy. Of the 58 cases coming under his own personal observation, 20 were actually moribund when the operation was performed, many of them entirely unconscious, and 40 were bad diphtheritic cases characterized by severe constitutional symptoms and extensive diphtheritic exudation upon the pharyngeal walls. In only 18 cases was the exudation in the pharynx slight, but in every case, without exception, membrane was expelled either in the form of thick muco-pus, shreds or large casts. In every case the operation was performed to prevent impending suffocation, and the cases pronounced hopeless without surgical interference.

Dr. D. A. K. Steele, in opening the discussion, said that of course the principal interest to the surgeon centres in the question of the performance of tracheotomy in croup or diphtheria. I have looked up some of the older statistics, in addition to those given by Dr. Waxham. The French seem to have led the way in the practice of tracheotomy. Trousseau in 1858 gave the statistics as about 25 per cent. of recoveries, and from later reports tracheotomy does not seem to have gained much. Dr. Solis Cohen, of Philadelphia, in 1883 recorded some 5,000 cases, and his per cent. was the same as given twenty-five years before by Trousseau, about one in four. More recent statistics show some improvement in tracheotomy, for example, Dr. Jacobi, of New York, published 1,000 cases in which he had a little better success, if I remember correctly, than those reported by Solis Cohen. A few days ago I saw a report of seventy-seven cases from the Boston City Hospital, with a recovery of twenty cases, about 25 per cent. In Chicago the statistics, as given by Dr. Waxham, are 306 cases with a recovery of about 19 per cent.; these are the most recent statistics I have found. Of course, in regard to the report of cases of tracheotomy, we have to bear in mind a very practical point—that is, that the unfavorable cases are not all reported. The majority of physicians who do a few operations and have not a successful result do not record their cases. In New York City some twelve years ago a surgeon reported 67 cases with 13 recoveries. He made operations on 100 additional cases before he had another succesful one; so there are curious mixtures and changes in the statistics of different operators.

Another point is that a good many surgeons report as successful cases that recover from the operation, but that die of some other affection or sequelæ, as this case reported by Dr. Waxham dying from albuminuria; all these cases are reported by tracheotomists as recoveries; but they are not recoveries from the diphtheritic croup. These points must be borne in mind. When we sum up, the statistics to-night would show a recovery of 27 per cent., which certainly seems to me to be a very favorable showing. In addition to these cases reported by Dr. Waxham, Dr. O'Dwyer has of late recorded 25 cases with a recovery of 24 per cent; taking all those cases into consideration, the Chicago record is ahead of the New York record by 3 per cent. In regard to the Boston City Hospital, where they had 25 per cent. of recoveries, we should bear in mind that those cases presumably have much better surroundings than we have in Chicago, or in general practice. There they have the best of nursing and immediate attention in case any mishap occurs, which in some cases in private practice might go unnoticed for many hours. With the favorable surroundings so far as the operation and the after-treatment are concerned, the reported recoveries of 25 per cent. are as favorable as we could expect.

Intubation is a comparatively new operation, but with the improved tubes (a serious defect in the construction of these tubes has been that the lumen was too small); I think that by enlarging the calibre of the tubes the percentage of recoveries would be increased. There would be less danger of rolling up the detached pieces of matter, and I think that expectoration would occur more freely. It is supposed to be necessary to have the tube extend down near to the bifurcation of the trachea, so as to prevent the curling pieces of membrane blocking up the opening, but I think they are longer than is necessary. The principal obstruction, we know, is at the larynx, the membrane below the trachea is thinner, smaller, and is not likely to curl up in this way. Theoretically the tube should be long, practically it might be shortened, and with the improved tubes we will get still better results.

A point in favor of intubation over tracheotomy is the rapidity with which it can be done, taking only the fraction of a minute to insert a tube in the hands of an experienced operator. We might also take into account the greater comfort of the doctor after the operation; the feeling of security with the laryngeal tube. I am constantly in dread after tracheotomy, watching and waiting, and seeing the little patients upon whom I have operated die one after another. Then the relief from dyspnœa seems to be quite as great after intubation as after tracheotomy. The relief from urgent symptoms is just as marked with the introduction of the laryngeal tube as with tracheotomy. In case we find intubation does not afford permanent relief it is no bar to tracheotomy subsequently, although where intubation does not relieve dyspnœa, tracheotomy will not relieve it; where stenosis is not relieved by the introduction of the tube, it does not relieve the dyspnœa.

Dr. W. E. Casselberry said his experience either with intubation or with tracheotomy has not been very extensive, but from it and from what he had gleaned from the literature of the subject, including the valuable paper presented to-night, he was very favorably impressed with the operation of intubation. The most favorable statistics of tracheotomy are those of not only the French, but more particularly of the large hospitals of France and Germany. In these institutions they have the fullest command of the patients in every way, the greatest attention can be paid them and the operation can be and is performed early. The most favorable statistics are those of Plenio (Konigsberg)— and of all the cases that were taken to the hospital but five escaped tracheotomy, showing that almost all were

subjected to the operation. The case of Dr. Ingals in which the membrane was removed from one of the bronchial tubes was a most brilliant one, but then intubation does not prevent tracheotomy from being performed afterwards. The forceps for the removal of the membrane through the mouth which the author has exhibited this evening is new; I have not much confidence in it, but perhaps it may be of value. In reference to the length of the tube, somebody has proposed that it should be shorter. I think it is the length of the tube which has rendered this operation successful over the operation of some eighteen or twenty years ago. It was invented by a French surgeon at that time, but the tube was only about ¾ of an inch long, sufficient only to reach into the larynx, where it excited irritation, and the operation was discarded as of no value; so that I think in the length of the tube we have an important feature. In reference to the introduction of the tube, if it is possible to practice on the cadaver it would be of great value; a minute is a long time when you are introducing a tube into the larynx of a child who is suffocating; you gag the mouth, introduce the forefinger as a guide to the larynx, follow it by the tube; the child stops entirely his feeble respiration, in a few seconds he becomes black in the face, and you are very anxious either to get the tube in or your finger out. If we bear in mind the instructions of the author of this paper to pass the tube under and not over the forefinger as a guide, I have no doubt we will be successful. And recollect that the curve into the trachea is a right-angled curve, so you must turn acutely and not obtusely or you will enter the œsophagus and not the trachea. The food of the patient is a most important point, when the tube is in liquids will frequently run into it and excite irritation.

DR. A. B. STRONG said: Before coming here I was prepared to endorse this operation to a great extent. I did not suppose the statistics were so favorable, but I am glad to find they are so. I have had quite a number of cases of intubation and of tracheotomy, and I must say I much prefer the introduction of the tube. However, not every case is adapted to the intubing; I think there are many cases where tracheotomy would be far preferable. We can feed a little patient after tracheotomy much better than after intubation of the larynx; to introduce a stomach tube would require the attendance of the physician several times a day. I have not yet given a fair trial to introducing the food into the rectum. I should not want a little patient that had suffered for three or four days before the operation to go without food; I like to feed my patients well, and certainly would not wish to starve them. There are three or four cases that have given me a good deal of information. The operation is new; we do not know all there is about it. One of the first cases that I had of true diphtheria, where intubing was done, was a little boy 4 years of age, taken sick five days before I saw him. The physician in attendance had given the child up, and I was called in. The little fellow was as near dead as any patient I had seen, but I would not have recommended tracheotomy in that case. The neck was badly swollen. Patient was cold, clammy, pulseless and cyanosed. Pupils widely dilated; apparently just on the verge of dissolution, mainly from profound blood-poisoning. I introduced the appropriate tube, and much to my surprise I nearly strangled him; indeed, for a moment I thought him dead. I drew the tube out and the child breathed a little bit better. It occurred to me that I might have crowded the membrane down. I introduced the tube again, with the same result; he was nearly strangled. I tried a smaller tube, but each time the tube went in the child nearly died. I laid him on the bed and surrounded him with dry heat. Brandy hypodermically. I did not suppose the child would live more than an hour, but to my surprise I received a telephone that he was alive and doing well ten hours afterward. I went to see him and found him with a good color, taking considerable nourishment. I called again in six hours just in time to see the child die. I had the privilege of post-mortem, and found exactly the condition of affairs I had anticipated. At the lower portion of the trachea I found a complete cast of that membrane crowded down. This case had been going on about five days when I saw it, and this membrane had been loosened in the meantime and so crowded down.

Another case was of a good deal of interest. A little girl eight years of age had a mild attack of diphtheria four days prior to my seeing her. Two days before I saw her the larynx first became involved, and gradually grew worse. The case was one of the most favorable for operation that I have seen. We introduced the largest sized tube and it remained in position for three days, and within 24 hours the lungs cleared up very nicely; at the end of three days and two hours the tube was removed with comparative ease, and I noticed that the child did not breathe as freely as I supposed she would. I remained about an hour, and during that time dyspnœa set in and the child nearly choked to death; we put in the one next in size and the symptoms were instantly relieved. The child wore that tube two days, when it died from bronchitis.

That case gave me this idea: the tube first introduced was as large as the parts would readily take in—it required a little force to introduce it—and it occurred to me that the tube was larger than was necessary. It remained there three days and two hours, squeezing the blood out from these parts, and when it was removed the sudden reaction caused the œdema of the larynx. The child wore that tube five days and a few hours, and until the last twelve hours of its life was getting along very nicely, except that it did not take the amount of nourishment I considered necessary. This operation is brilliant, and has a future before it, and I can heartily endorse it today. I am perfectly willing to try it, and I would prefer, in case of one of my own children, intubing the larynx to opening the windpipe.

DR. CHRISTIAN FENGER said: The subject is a most important one. As to the history of the operation, I would say that it is not a new one. A French surgeon, Loiseau, invented it in 1858, and to him belongs the idea. The instruments were, in the principle, about the same which we use now; there has

been modifications in details only. Tubeage was tried in France by Gros, but seems not to have found favor, although Bonehut recommended it without having used it himself. It was tried in Vienna by Weinlechner, who recommended it, condemned by Steiner and Ziemssen, and given up again. In reference to what was said about patients not swallowing at all for the first twenty-four hours, it seems to me it would be difficult to keep little children from drinking milk, or water perhaps, milk anyway, because they are always thirsty. There will thus be danger from foreign body—pneumonia (Schluck pneumonie). It might be that feeding bottles will obviate that danger. A second point is this: I saw a child treated by intubation die from loosened membranes closing the bifurcation. Whether the membranes were entirely loose or not, or loose above and attached below, is not materially important. The case convinced me that I would have felt safer with tracheotomy, because loosened membranes can be reached easier through the tracheotomy tube than through the larynx. As to the statistics, it is quite certain that the tracheotomy statistics are a little better than have been given here to-night. In the large hospitals in Germany the recoveries reach up, in the last few years, to 31 per cent. At the same time, when intubation shows 27 per cent., that is in itself reason enough for a trial. All these points are not exactly exclusively in favor of intubation, but like Dr. Strong, I should first try the tube, if it was my own child, and watch the patient incessantly, with the tracheotomy instruments on the table to be ready at any time when needed to resort to tracheotomy.

Dr. S. Stockton was in favor of intubation.

Dr. R. G. Bogue said: There is much to recommend intubation I believe. The testimony we get is certainly enough to recommend the operation and to establish it as a practical procedure and one worthy of trial. It affords probably as much relief for the urgent symptoms, the one for which tracheotomy would be resorted to, as tracheotomy would; and the length of time that the tube is to be worn will be shorter than the tracheal tube. There are reasons why it should; from the pressure of the tube upon the membrane the presence would be likely to cause some disintegration of the membrane, and in that way the membrane would be taken away or gotten rid of sooner than without the pressure. The only objection—at least the one objection which occurs to me from what little I have seen, and what we hear, is the matter of fluids passing through the tube into the trachea and into the respiratory passages while attempting to feed the patient. That is an annoyance and probably a detriment. It also, I suppose, will deter children from trying to take fluids. Little children soon learn to avoid things which hurt them, and I should think that it would be a factor in preventing the free feeding of children. Now it may be that the introduction of fluid into the air passages may not be harmful, for as recently as to-day I saw in some report from New York the recommendation that in case of tracheotomy, where there is obstruction below the tube to pour fluid, by teaspoonful, for instance, into the tracheotomy tube, letting it run down into the air passages for the object of liquefying and softening the membrane and getting rid of it in that way. That I think, is recommended by Dr. Geo. F. Shrady, who had practiced it recently with apparent benefit.

The question of introduction of fluid into the air passage may not be a tangible objection. But we would perhaps prefer to select the kind of fluid we would put into the trachea instead of milk or beef tea, or anything of that kind. The operation of tracheotomy has been resorted to for a great many years, with varying success by different operators and in different localities. Trouseau years ago, reported his success as about one in three, or three to four, from a very large number of cases. In the cases we have heard this evening as compared one with the other, tracheotomy hardly holds its own. The number of cases in tracheotomy no doubt are not all reported, but a fair proportion of them probably having been reported. While tracheotomy is certainly of great benefit, and has proved itself to be such in this class of diseases, it is subject to its disadvantages and annoyances; but so also has intubation its annoyances both to the patient, the friends and the doctor.

Dr. C. T. Parkes: I have nothing but words of commendation as far as Dr. Waxham is concerned, for his persistence in presenting this method of O'Dwyer to the profession of this city. I have nothing to say about intubation; I have no experience, never having seen a tube used. I have had a little experience in tracheotomy, and so far as my personal experience goes, I shall stick to that until I have reason to change it. My experience extends over thirty-one cases of tracheotomy. I had the honor to report to this society on previous occasions the first fifteen cases; eight recovered and seven died. I have collected the names and residence of sixteen more, and of these ten have recovered and six died. That is a pretty fair showing. I cannot explain, do not pretend to explain this percentage of recoveries. You will find in the literature of tracheotomy throughout the world that some operators have a good fortune in that respect. I do not think it an unusual or peculiar fact that the doctor relates about relief given to the patient when you open the trachea after stenosis; cases in which the patients are unconscious, black in the face, and are revived by the introduction of the laryngeal tube, such a result is to be expected. I see by the report very few if any of these cases recover after intubation; I know I have seen just such cases recover after tracheotomy. I have never had any trouble from the swallowing of fluids or food of any kind; I have seen the fluids come out of the opening of the tube, and have had the physician in charge reporting that we had unfortunately made an opening into the œsophagus; those cases have never given trouble, and in a few days subsided. There is one peculiarity about these cases of intubation, that Dr. Bogue has explained, the pressure of the tube causing an early disappearance of the membrane. There have been no cases that I have seen in tracheotomy, where the tube could be removed under six days; in two cases it was three or four months before the tube was removed; I have never seen the trachea

opened so far, without seeing false membrane come out of the trachea. If I were enabled to remove the tracheotomy tube inside of six days or a week, I should think that to be a case in which no membrane was found in the trachea and one, in all probability, if I had waited a few days, in which the patient would have gotten well without any operation. There is something peculiar and interesting in the ages of these sixteen cases, the youngest being 3½, the oldest 37 years of age. I think the cases in which stenosis has been complete, and required an opening of the trachea, have been very few in the adult. One of these operations was upon a woman after she had been sick some four or five days with a bad case of pharyngeal diphtheria. At the time I saw her she was absolutely suffocating, and I was called for the purpose of performing tracheotomy; I did the operation under very poor surroundings and yet the patient recovered. The tracheal opening became diphtheritic. Another case was 32 years old. The patient died on the table; this accident has happened in quite a number of cases. I never had any trouble with the children and certainly expected less with the adults, as in the latter the operation is much more simple than in the child. This patient stopped breathing before the trachea was reached, and after it was opened it was impossible to restore respiration. As far as I am concerned, I can say nothing about intubation, I think it is very likely I shall purchase a tube. I don't know whether or not it is such an easy thing to intube the larynx; I think I have cognizance of three cases not in the doctor's list that proved fatal, in which some difficulty was met. One 3 years old died the day after. One 7, in which no relief was given, as the membrane seemed to be pushed ahead of the tubes, and one in which no relief being given, the attempts to remove was complicated by the child swallowing it and being buried with the tube in its stomach. Another, a young lady 17 years old. This patient recovered; she was relieved immediately after the introduction of the tube, and rested very comfortably until the next day when she complained of a pain in her stomach. In the evening of that day she passed the tube from the rectum. I allow you to judge of the necessities requiring its use, so I don't know that I can agree with these gentlemen and say the operation is simple. We know what tracheotomy amounts to, and I am sure I would not feel right about it, I should be haunted with the idea of not doing my whole duty, if I left a child 7 years old go without doing tracheotomy where I felt satisfied, after this tube was introduced there was no relief given. I think tracheotomy will always have a place. I have been asked so many times how I come to have this record of tracheotomy, that I think it is due me to say one thing more; I do not know how to explain it. I believe no other operation for tracheotomy should be done but the high operation. The trachea should be opened at the highest ring, and if necessary, divide part of the cricoid, as I have done, or all of it. Certainly the after care has a great deal to do with the recovery, and I do not believe there are any persons so wanting in intelligence, but if you give them instructions carefully they will carry them out. So far as my experience goes, the surroundings have made no difference, even if it be a house of only one room with the whole family living in it, and several other animals besides. I think the room should be kept at a temperature above 80; there should be no attempt to fill it with moisture, the room should be so hot as to be decidedly uncomfortable for all the friends, for the first twenty-four hours. During this time (twenty-four hours), the inner tube of the trachea should be removed every hour whether the patient seems to need it or not, because that is the time when the deep seated trouble in the organs below starts. After that time I do not believe the tube should be removed oftener than seems absolutely necessary, and I do not believe that mucus can be prevented from drying by the introduction of foreign bodies. Every time the tube is removed it should be reintroduced damp, or wet in a mild solution of soda, and occasionally without taking out the inner tube, drop into the trachea a few drops of this same fluid so as to keep the end of the tube as moist as possible. No foreign bodies of any kind should be introduced into the trachea after you are quite certain all the pieces of membrane had been detached and removed at the time of the operation. The introduction of such an innocent little thing as a feather or sponge I am satisfied does more harm than good. I am willing to admit that in one case which showed every sign of recovery, the tube was moist and the cough was moist, and I had every reason to believe it would get well, but owing to over anxiety I kept poking feathers into the trachea and had the friends do the same, until I got up an inflammation of the trachea proper around the tube, which I am satisfied was the cause of the fatal issue. I do not think there should be any interference; the least possible interference is the best plan of cure.

DR. H. T. BYFORD said: I wish to call attention to one fact; that is, in the statistics of hospitals tracheotomy shows about as favorably as intubation, although in private cases the safety, simplicity, and absence of formidableness of intubation makes it already the popular operation. As I have said before this, tracheotomy is an operation for hospital practice, where the difficulties can be overcome, and where its just claims for precedence in particular cases must always obtain consideration.

DR. F. E. WAXHAM, in closing the discussion, said: I believe every tracheotomist will entertain an opinion in regard to tracheotomy according to the success which he has attained. If a physician has saved every patient upon whom he has operated, he will feel that the operation is good enough, and will be perfectly satisfied; if he has saved a large proportion of his cases he will be loth to accept anything new; but the great majority of physicians, who have either met with unvarying failure or inferior success, will have a poor opinion of the operation. English writers seem to be losing faith in tracheotomy, for Holmes, in his "System of Surgery," says: "English medical men seem very generally to incline to the opinion that the operation, if not to be recommended, is at least justifiable, but to be successful it must be performed at a very early period of the

attack." Referring to Professor Parke's remarkable record of tracheotomy, I can not help feeling that his cases could not have been so unfavorable. I cannot believe that he had many young infants to operate upon. I would like to ask the age of his youngest patient?

DR. PARKES: Three and a half years.

DR. WAXHAM: That explains why his record has been far more successful than that of many physicians. I believe that if tracheotomy were performed upon every case without reference to age, condition, or type of disease, we would not save more than one out of every ten or twelve. Many physicians select their cases; indeed, I know of some who *will not* operate upon a child under three years, and of others who will not operate upon diphtheritic cases on account of the known fatality occurring after tracheotomy in these cases.

In regard to the difficulty of performing intubation, I would say, that any of you who attempt the operation upon a child without practice upon the cadaver, will certainly be sorry for it. I have known of four physicians who have failed completely. In regard to the patient to whom the last speaker referred, the young lady with the tube in her stomach, that case I am afraid was not in my record. I, unfortunately, or perhaps fortunately, did not secure the patient.

Dr. Parkes has stated that after tracheotomy, if he were able to remove the tube in less than six days he would have concluded that there could have been no membrane within the larynx, and that if he had waited a few days longer the patients would have recovered without the operation! May I be pardoned for feeling that the natural inference would be, that in these cases of intubation because the tube has frequently been removed on the third, fourth or sixth day, that there could have been no membrane present and that the operation was unnecessary? In reply, I would state that in every case coming under my observation false membrane has been expelled when the tube was introduced. The reason why the laryngeal tube can be removed earlier than the tracheotomy tube is, that more or less membrane is detached when the tube is first introduced, and second, the pressure of the tube and the frequent coughing assists in dislodging the membrane; while after tracheotomy little or no air passes through the larynx until after the removal of the tube, and there is nothing to cause the dislodgement of the membrane.

In regard to feeding the patient: Many of my patients have taken abundance of nourishment without difficulty. Occasionally, however, there will be one that will not take a sufficient amount. It will depend a great deal upon the size of the tube. If we use a tube larger than is appropriate for the age of the patient, it will not always fit perfectly into the cavity of the larynx, and consequently the epiglottis will not close accurately over it. In a case such as Dr. Strong has referred to, where the membrane is pushed down ahead of the tube, the trachea forceps would be very useful in removing it.

There are a great many dangers from tracheotomy that are never met with from intubation; but we rarely hear of them. I have learned of one physician who attempted a tracheotomy on a child four years old. Cutting down hastily he severed large blood-vessels, and losing his head at the sight of the copious hæmorrhage, at once sewed up the wound, while the child, almost with his last breath, wanted to know if they were going to cut him any more. Another physician, in cutting down hastily in order to open the trachea, missed it, and accidentally severed the carotid artery. Indeed, the history of tracheotomy is replete with horrors, but we do not hear of them. In the hands of experienced surgeons, who are cool and collected, the operation may be a simple and safe one; but in the hands of the inexperienced and the nervous, performed, as it frequently is, in the dead of night, it then becomes a formidable, yes, a dangerous procedure. Intubation, on the other hand, can be performed quickly, in a very few seconds, and without the dangers attendant upon tracheotomy.

NINTH INTERNATIONAL MEDICAL CONGRESS, TO BE HELD IN WASHINGTON, D.C., COMMENCING SEPT. 5, 1887.

PRELIMINARY ORGANIZATION.

SECTION XIV. PUBLIC AND INTERNATIONAL HYGIENE.

TO THE EDITOR OF THE JOURNAL:

Dear Sir:—I have the honor to submit the following with reference to questions N and O, relative to *Quarantine*, proposed for discussion by the Fourteenth Section of the Ninth International Medical Congress:

The idea which I had in propounding questions N and O, was for the purpose of bringing about a grand union of action on the part of all civilized nations on the subject of *Quarantine*, so as to advance the cause of medical science and humanity.

As matters now stand commerce is made to bear the *brunt* of *Quarantine*. The unfortunate ship stricken by pestilence suffers detention and in some cases immense expense. The unfortunate crew and passengers, who have committed no crime, are treated like *outcasts* and *outlaws*. They are supposed to have no rights which humanity is bound to respect.

Commerce bears in its bosom the germs of civilization; commerce establishes and sustains the markets of the world; commerce is the agent for the dissemination of all that is grand and noble in the life and development of our common humanity; and the brave and hardy sons of commerce have in all ages and in all times rallied to the defense of their native lands.

Is it just, is it right, that the pestilence-stricken ship should bear all her expenses, and suffer all that the safety of man may demand and that avarice and cowardice may suggest?

Has not civilization advanced to that stage, and are not the great civilized and Christian Powers of the world (the United States of America, the British Empire, France, Germany, Austria, Russia, Italy, Spain, Portugal, Denmark, Norway and Sweden) sufficiently strong, wealthy and enlightened to estab-

lish a uniform system of quarantine which should embrace:

1. A system of mutual confidence; a uniform system of registration of diseases and deaths.

2. A system of regular health reports, giving detailed statements, weekly, monthly and annually, and if necessary daily, of all matters relating to the public health—to the sanitary welfare of nations. By the use of the telegraph all civilized nations could be kept informed of the appearance, spread or arrest of any contagious or infectious disease, as small-pox, cholera, yellow fever, etc.

3. A uniform system of quarantine, adapted, of course, to the climate, latitude, and endemic or epidemic diseases.

By a *uniform system* we mean uniformity in the construction of quarantines, and their administration, and the uniform assumption by the great Governments of the world of all quarantine expenses of cleaning, fumigation, and the treatment of the sick. The only expense necessarily borne by the pestilence stricken ship, or by the *suspected* ship, detained in quarantine, would be the loss of time and the necessary expenses for food of crew and passengers.

As quarantine is now conducted, the owners of ships as well as the passengers and crews suffer, often unequally and unjustly, for the general good.

The two questions are complementary one to the other; and to make this relation plain we re-state them.

N. Shall the General Governments of the civilized world assume control of all the quarantine systems, and by mutual consent reduce the entire subject of quarantine to order, and apply the most improved methods of sanitation and disinfection?

O. Shall the Government of the United States assume charge of the entire subject of quarantine (within her own borders), and relieve the individual States of all further responsibility for not merely foreign, but also inter-State quarantine?

O flows necessarily from N; to be of any practical value the discussion of N must precede that of O; O cannot be construed as relating to anything but the United States of America and its individual States, and does not refer to foreign States, only so far as one of the contracting parties under proposition N.

I hope that the high purpose by which I am actuated in propounding these questions is clear—the discussion is for all civilized nations, and the earnest hope is entertained that great good will grow out of it for the protection of commerce, the advancement of medical science and the welfare of humanity.

Your obedient servant,

JOSEPH JONES, M.D.,

President Section XIV, Public and International Health, Hygiene, Provisional Organization Ninth International Congress.

156 Washington Ave., New Orleans, La., July 7, 1886.

AMERICAN MEDICAL ASSOCIATION.

FORMED IN 1846.

Next annual meeting will be held June 7th, 8th, 9th, and 10th, 1887, in Chicago, Ill. President, E. H. Gregory, M.D., St. Louis, Mo. Permanent Secretary, W. B. Atkinson, M.D., Philadelphia, Penn. Assistant Secretary, J. Nevins Hyde, M.D., Chicago, Ill. Treasurer, Richard J. Dunglison, M.D., Philadelphia, Penn. Librarian, C. H. A. Kleinschmidt, M.D., Washington, D. C. Chairman of Committee of Arrangements, Charles Gilman Smith, M.D., Chicago, Ill.

All membership dues should be sent direct to the Treasurer, RICHARD J. DUNGLISON, M.D., lock box 1274, Philadelphia, Penn.

DR. A. M. POLLOCK, of Pittsburgh, Pa., has been appointed Secretary of the Section of Surgery and Anatomy of the American Medical Association for the present year.

DOMESTIC CORRESPONDENCE

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

(Concluded from page 55.)

An Excursion to the Catskills—The Ulster County Medical Society—Mr. Henry Bergh on Pasteurization.

But to return to our medical excursion party. The ride in the cars up through Stony Clove was a most picturesque and charming one, and it was rendered all the more attractive by the masses of wild laurel in full bloom all along upon the mountain sides. The finest part of the Clove is that near its upper entrance. Here the depth between the two great mountains—Hunter on the one side and Spruceback on the other—is extremely narrow, and the rocky and precipitous cliffs, covered with stunted evergreens, tower to a vast height on either side of the road. Those on the Hunter side, particularly, form an almost perpendicular wall, and present an aspect of wild and indescribable grandeur. It is here that the ice-cans, where ice remains throughout the entire year, are found; and in summer the temperature is always considerably lower at this point than in the surrounding region. After leaving the Clove, the scenery is not less beautiful, and the romantic terminus of the railroad, on the shore of one of the two lovely Catskill Mountain lakes, seems a fitting place of ending for so inspiring a ride. Stages are in waiting for the party, and by six o'clock all are safely landed at the hospitable doors of the great Hotel Kaatskill, whose

"arces
Alpibus impositas tremendis,"

white and gleaming in the sunshine, we had long been watching from afar.

With keen appetites we sat down to a bountiful supper, and afterwards wandered off to enjoy the declining day.

—— Sol ubi montium
Mutaret umbras . . . amicum
Tempus argens, abeunte curru.

At half-past eight the scientific session was resumed, and Dr. H. Van Hoevenberg read a paper of medico-

historical interest in regard to the City of Kingston. The Provincial Congress, which was obliged to leave New York on account of the arrival of the British army, assembled at the court-house in Kingston March 6, 1776, and immediately proceeded to organize a form of government for the State. The first constitution of the State of New York was probably adopted here on April 20, and two days later it was read aloud to the people by Robert Berrian, Secretary of the Convention, standing on a barrel in front of the court-house.

The most important business before the Convention having been finished, the trial of a number of Tories was taken up, and two of them were hung. Up to a year ago a large oak tree, standing just on the verge of the town, was known as the "Tory's oak," and was said to be the tree on which a number of Tories were hung during the Revolution.

On July 11 an election was held, and George Clinton was chosen Governor. Among the persons present at the inauguration of Governor Clinton was Dr. Luke Kiersted, who at that time was a very prominent man in the community.

The result of the action of the Convention at Kingston, and the proclamation of Clinton as Governor, was that the British sent a force of about 1,600 troops, under General Vaugh, who landed at the mouth of the Rondout Creek, and marched up to Kingston, where they immediately proceeded to plunder and burn the houses and barns of the inhabitants. Most of the able-bodied men of the place were with the Continental army in the Highlands, and although a detachment was sent north to protect Kingston, it did not arrive until the work of destruction was nearly completed.

The Ulster County Medical Society was organized in Kingston July 1, 1806, with Dr. James Oliver as President, and Dr. Luke Kiersted Vice-President. In looking over the records of the Society it is found that even in those days the profession was troubled with quacks, and one of the first things that it did was to take action concerning a number of illegal practitioners. At the annual meeting in 1807 it was voted to choose some subject for debate at the succeeding one, and that the President should appoint some one to open the discussion. Accordingly "Fever" was the subject selected, and Dr. Samuel H. Phillips was appointed for the purpose. It is found that as Dr. Phillips did not appear at two subsequent meetings, he was fined $5; and the speaker thought that this might perhaps be a good precedent to follow at the present day under similar circumstances.

Dr. Van Hoevenberg said, in conclusion, that there were inscribed on the roll of the Society the names of some who have been men of marked ability, men who, with the opportunities which would have been afforded them in one of the large cities, would have risen to high position in the ranks of the profession. But they were content to live the life of usefulness that opened before them, doing all the good that they could to those around them, often at the cost of hardships and sacrifices; many times getting little, if any, pay, and sometimes more curses than thanks as their reward.

The opponents of Pasteur are not likely to have their cause materially advanced in the eyes of the general profession by the following expression of opinion by Mr. Henry Bergh, which was given in connection with some comments on the recent experiments on dogs by Dr. Spitzka, made for the purpose of showing that so-called cases of hydrophobia could be produced at will by the introduction of various foreign substances into the brain after trephining: "Pasteur is in the way of doing great harm to mankind. He has never proved that he treated a case of pure hydrophobia. He has never cured a case of hydrophobia. Yet, by creating a scare, he has worked upon the public mind so that people intelligent in most things have been convinced that he has made a great discovery. His discovery has a parallel in Jenner's, who has done more harm to the world than any other man. What can be more senseless and illogical than to put into the blood of a child the discharge from a diseased animal? It doesn't prevent disease, but spreads it. A great number of the cases of cancer, scrofula and consumption have appeared as a consequence of this method of treatment, by which poisonous matter thrown off by one body is infused into another. Such diseases have not spread among savages or among people not subjected to this treatment, and I am amazed that persons of intelligence should submit to it." The Quixotic President of the Society for the Prevention of Cruelty to Animals seems to be totally unaware that he is paying the highest possible tribute to the preventive treatment of Pasteur by coupling his name with that of the immortal Jenner. P. B. P.

BOOK REVIEWS.

A Text-Book of Medical Physics. For the Use of Students and Practitioners of Medicine. By John C. Draper, M.D., LL.D., Professor of Chemistry and Physics in the Medical Department of the University of New York, etc. With 377 Illustrations. 8vo., pp. xxxii, 733. Philadelphia: Lea Brothers & Co. 1885. Chicago: A. C. McClurg & Co.

We cannot too earnestly hope that this, the first work on medical physics in this country, is the forerunner of a new era in medical education. Thus far our colleges may, with but few exceptions, be said to have "thrown physics to the dogs." As a demand will create a supply, so it is to be hoped that in this case a supply will create a demand for a good text-book on medical physics.

Those who have studied Ganot and Deschanelle will note the conspicuous absence of mathematical formulæ and problems in reading Dr. Draper's work; even the familiar one which is supposed to prove that an air-pump cannot be completely exhausted is omitted; and mathematical formulæ are even omitted from the chapters on light. And in this connection it may be said that one of the best chapters in the book is that on the microscope, which treats well of dry objectives, immersion objectives, of the prepara-

tion of slides and covers, of objects, of hardening and section-cutting, injection, staining, chemical testing, and of everything else pertaining to the use of the microscope. The book may be regarded as a most excellent addition to truly medical literature.

NECROLOGY.

DR. SIMON STRAUSSER.

DR. SIMON STRAUSSER, of Chicago, Ill., died at his residence in that city, April 22, 1886. He was born in Enerbach, Bavaria, in 1833. He received an academic education in his native country, and where he began the study of medicine at the Polytechnic Academy of Wurtemburg, though he did not finish his course. In 1848 he emigrated to America, and a year later attended lectures at the Jefferson Medical College, serving at the same time as an interne in one of the hospitals. While so engaged he made the acquaintance of a student from Virginia who invited him to visit his family at Alexandria. This invitation was accepted, and while there he made many friends who assisted and encouraged him, and he began the practice of medicine without having received a degree. In 1854 he was married to Miss Clara Tupper, and in 1857 removed to Philadelphia where he practiced until 1867, when he removed to Chicago, Ill. He there acquired a supporting practice and became a member of the Chicago Medical Society in 1879, receiving in the same year the degree of M.D. from the Rush Medical College. He was a laborious student, a conscientious and careful practitioner and devoted to his profession. Dr. Strausser lost his first wife in 1862, and in 1869 was married to Miss Pauline Schlaus, of Pittsburgh, Pa., who with three children, survive him. For the past year the doctor was conscious of failing health, but kept attending to his duties as best he could, and worked up to ten o'clock of the night on which he died. His death was sudden, and caused by angina pectoris. He was a member of the American Medical Association, attending the meeting in 1883 at Cleveland. Resolutions of respect to his memory were adopted by the Chicago Medical Society, May 3, 1886. J. M. T.

MISCELLANEOUS.

HEALTH OF MICHIGAN.—For the month of June, 1886, compared with the preceding month, the reports indicate that intermittent fever increased in prevalence. There was no marked increase or decrease of any other disease. The temperature was higher, the absolute humidity considerably more, the relative humidity and the day ozone were about the same, and the night ozone was more.

Compared with the average for the month of June in the eight years. 1877–1886, remittent fever, measles, intermittent fever, pneumonia, bronchitis and diphtheria were less prevalent in June, 1886. The temperature was slightly lower, the absolute and the relative humidity were about the same, the day ozone was more and the night ozone was considerably more.

Including reports by regular observers and others diphtheria was reported present in Michigan in the month of June, 1886, at forty-seven places, scarlet fever at forty-eight places, typhoid fever at six places, measles at sixteen places, and small-pox at three places.

Reports from all sources show diphtheria reported at four places less, scarlet fever at nine places more, typhoid fever at the same number of places, measles at five places less, and small-pox at three places more than in the preceding month.

OFFICERS OF STATE SOCIETIES:—The Ohio State Medical Society at its 41st annual session at Akron, June 2, 3. 4, 1886, elected the following officers: President, Thomas MacEbright, of Akron; First Vice-President, J. M. Weaver of Dayton; Second Vice-President, W. S. Battles, of Shreve; Third Vice-President, X. C. Scott, of Cleveland; Fourth Vice-President, Jesse Snodgrass, of Kenton; Secretary, G. A. Collamore, of Toledo; Assistant Secretary E. C. Bush, Zanesville; Treasurer, T. W. Jones of Columbus. The next meeting will be held in Toledo.

The Kentucky State Medical Society at its 31st annual meeting held at Winchester, June 23, 24, 25, 1886, elected the following officers: President, W. H. Wathen, of Louisville; Senior Vice-President, J. M. Harwood, of Shelbyville; Junior Vice-President, J. H. McKinley, of Winchester; Permanent Secretary, J. Steel Bailey, of Stanford; Assistant Secretary, T. C. Simpson, of Bardstown; Treasurer, Edward Alcorn, of Hustonville; Chairman Committee of Arrangements, J. G. Brooks, of Paducah. Next place of meeting, Paducah the third Wednesday, in June, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 26, 1886, TO JULY 2, 1886.

Col. Thos. A. McParlin, Surgeon, granted leave of absence for two months, with permission to apply for an extension of one month. (S. O. 146, A. G. O., June 25, 1886.)

Lt.-Col. Chas. Page, Surgeon, leave of absence extended ten days. (S. O. 146, A. G. O., June 25, 1886.)

Lt.-Col. D. L. Magruder, Surgeon, granted leave of absence for two months, to take effect on or about July 1, 1886. (S. O. 146, A. G. O., June 23, 1886.)

PROMOTIONS.

Lt. Col. Jos. B. Brown, Surgeon, to be Surgeon with the rank of Colonel, Jan. 24, 1886.

Major Anthony Heger, Surgeon, to be Surgeon with the rank of Lieut.-Colonel, Jan. 25, 1886. (Circular A. G. O., June 25, 1886.)

Major Richard S. Vickery, Surgeon, assigned to duty as Surgeon in charge of Army and Navy General Hospital at Hot Springs, Ark. (S. O. 150, A. G. O., June 30, 1886.)

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE WEEK ENDING JULY 3, 1886.

Green, E. H., P. A. Surgeon, ordered to Naval Laboratory at Brooklyn, temporary duty.

Brown, J. M., Medical Director, member of Retiring and Examining Board.

Ogden, F. N., Asst. Surgeon, ordered to "Juniata."

Siegfried, C. A. Surgeon, three months' leave abroad.

Hall, J. H. H., P. A. Surgeon, detached from Museum of Hygiene, and ordered to Naval Hospital at Brooklyn.

Wentworth, A. R., Asst. Surgeon, detached from "St. Louis" and ordered to "Brooklyn."

Decker, Corbin J., Asst. Surgeon, ordered to "St. Louis."

Berryhill, T. O., Asst. Surgeon, ordered to Museum of Hygiene.